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PRICE MARGINS

ONE of the ideals envisaged when the gas industry was nationalised was more uniformity within the areas, and indeed throughout the country, in the prices charged for appliances, as well as in the price of the gas consumed by them. After vesting day, however, the area boards continued—in only 12 areas against something over 1,000, it is true—to make whatever additions they deemed appropriate to the prices charged to them by the manufacturers and so perpetuated old grievances about cookers, fires, and water heaters costing more on one side of a road than on the other. An article in the national Press recently referred to an allegation by some appliance manufacturers that the majority of appliances were given an uplift of nearly 40% between the makers and the public, compared with an average of just over 25% before the war when the industry was in private hands.

The question has been discussed at meetings of several of the gas consultative councils, and although the consumers' representatives have naturally been reluctant to accept any decision calculated to raise the price of appliances there apparently has been acceptance that proposed increases in price margins are not unreasonable. Early last month after the North Eastern Gas Consultative Council had discussed the matter in committee, Dr. R. S. Edwards issued a statement that the council agreed with the Board's recommendation to increase the margin on all appliances from 25% to 33⅓% from January 1. A similar change was approved about the same time by the Wales Gas Consultative Council, Mr. R. S. Snelling, Deputy Chairman of the Wales Gas Board, stating that at that time six out of the 12 area boards had accepted a recommendation of the Gas Council to charge 33⅓% on the wholesale prices.

The argument used by the gas boards to justify what appears to us a very heavy margin is that the cost has to be incurred of providing storage and local depôts and also, as the deputy chairman of one board has put it, the 'mechanics of selling'—to us, considering what little has been done by way of sales promotion, not a very convincing expression. Not only does the consumer have to foot the price margin bill, he has also to pay fixing charges, and, cookers excepted, before he buys his appliance he has to cover purchase tax and is allowed minimum credit facilities. As we have said, the 33⅓% margin seems a heavy impost, but it is no secret that the South Eastern Gas Board is adding 37½%. Surely it is difficult to justify this as a promotional business proposition.

COAL IN SHIPS

WITHOUT coal the British gas industry cannot function, and it can function little better if the coal cannot be brought from the pits to the works at an economical price. This problem of transportation naturally differs according to the distance it has to be taken and the facilities available. Three area boards find it necessary to place considerable reliance on transport by sea, and of these perhaps the South Eastern Gas Board has explored the advantages of this method most thoroughly. Not only does 60% of the Board's coal come by sea direct, and a further 25% by sea and rail, 7% by sea and barge, and 4% by sea and road—totalling 96%—but the Board has found it advisable to own and manage its own ships. Much of this activity stems from the pioneer work of the former Wandsworth and District Gas Company, of which Mr. A. G. Gostelow was Coal and Shipping Manager. With nationalisation Mr. Gostelow extended his duties to embrace the whole South Eastern area and assumed control of the ships formerly owned and managed by the South Metropolitan Gas Company. The combined fleet now totals 15 vessels and its operation, which is understandably a source of pride to the Board, is also a story of considerable interest to the whole industry.

That story was told in an article entitled 'Seventeen Bridges to Wandsworth,' published in our issue of July 2, 1952, which traced the growth of the fleet and described its character. In the paper which Mr. Gostelow presented to the London and Southern Section of the Institution of Gas Engineers the transport of coal by sea was shown in relation to the whole question of coal supply. It was a paper which had to be written sometime, because there are few aspects of the gas industry so badly neglected by our various technical associations and so taken for granted by the industry as a whole. The coal officer's job is a difficult one and earns him few thanks, even from those he helps most. It is not his fault that the quality of coal for carbonising leaves much to be desired and is sometimes in short supply. He has to plan many months ahead, has to foresee increases in demand or decreases in supply, has to allocate coal fairly in times of shortage, and has to keep in motion the elaborate wheels of transport.

'Coal Supplies for the South Eastern Gas Board,' as the paper is called (it is published on pp. 152-165) leaves little doubt in the mind of the reader why the wavy blue line representing the River Thames appears in the Board's coat of arms, together with the crest derived from the Cinque Ports. These form the northern and southern boundaries of the South Eastern area and they indicate how great is the dependence of the Board on water as a means of transport. The 59 manufacturing stations, consuming from under 1,000 tons per annum to 2,500 tons per day, present interesting methods of distribution, for while some are in close proximity to a river, harbour, or canal, others are some distance inland. For them all economy in transport must be the keynote and, as Mr. Gostelow has it, 'If a wheelbarrow pushed by a man gives the best service at the cheapest price, then a wheelbarrow it should be.'

If the paper does nothing else, it at least throws useful light on the versatility required of a coal officer. His knowledge must be wide, his judgment acute, and his enthusiasm boundless. Of Mr. Gostelow's knowledge and judgment we have no doubts; equally we have no doubts about his enthusiasm. It is an enthusiasm which he shared with Colonel C. M. Croft, who did so much to build up Wandsworth's fleet of colliers, and it is present today in the fine models which adorn his office, in his scores of carefully collected photographs, and in his eager conversation. Such enthusiasm is perhaps rarer in the industry these days than it was in the past, and for this reason it is the more valuable.

OPERATION OF OXIDE PURIFIERS

THE work on a set of standard oxide purifiers at Bournemouth so ably and so exhaustively reported by Dr. L. A. Moignard at the research meeting of the Institution of Gas Engineers may be regarded as a major action in a long campaign initiated by the investigation of the causes of the hardening of oxide in the boxes reported in 1948 and continued by the survey of practice in 1949. The study of hardening rapidly developed into a broad investigation of dry purification as a whole. The same broad view had been taken by Mr. G. U. Hopton in his excellent paper of April, 1948, and the study of the possibilities of new techniques, the use of new materials, was rounded off by Dr. H. Hollings last year. With these papers, and a few others listed in the references appended to Moignard's report, the picture is complete as far as it can be at present.

Broadly, the recommendations of the early reports have been put into practice over a long period under careful and expert supervision with conspicuous success. And while it is not claimed that they will in themselves solve every problem it is clear that, implemented with intelligence and adapted to the conditions of each individual case, they can form the basis for operation as trouble-free as ought to be expected in so complicated a process and with so many possible variables. Hardening can be reduced to an easily manageable extent. Back pressure 'ceases to be an embarrassment.' Gas throughput is increased with advantage. Saleable oxide was obtainable in one exposure but better results leading to higher sales value were obtained in two.

One of the more obvious of the earlier recommendations was that tarry bodies should be prevented from entering the purifiers. Mr. H. B. Avery demurred from Dr. Moignard's suggestion that a certain minimum could be tolerated. Apart from the physical inconvenience of tar among the oxide it was responsible for 'the revolting smell of spent oxide' which he was convinced was one of the main reasons for the workers' dislike of oxide handling. Electrostatic detarring at a low temperature point in the gas stream helps a lot, but oil-washing at a very low cost could remove the trouble altogether. Mr. Avery's contribution to the discussion will in any case be read with great respect. It appears to have particular value in calling attention to points which may vary in different installations—as for instance that digging the top layer of the oxide would only be effective where downward flow was practised. As Mr. J. E. Davis put it, operators should take the report and study the principles of it rather than the details—comparing it with the requirements of their own purifiers and 'by measurement, not by guesswork or by what had been the custom at the works,' see how these principles could be applied to their own case. All this means that purifiers must be operated in a careful routine of technical control—not left to their own devices, except for the daily acetate paper test, as they so often are (or were!) One of the more obvious differences in installations is that of exposure to weather or protection from it. Perhaps this is not as important as it looks but it would seem that protection from the weather would eliminate one variable to some extent—that of loss or gain of heat to or from the atmosphere. The number of boxes in the ideal set is another point which, surprisingly, is still a matter almost of sentiment rather than of rational opinion.

Of one thing we were left in no doubt. This work, costly as it may seem, is very worthwhile. As Mr. J. T. Haynes put it, if only one large works in

each gas board's area could achieve savings such as those made by the adoption of these recommendations at Poole the cost of the investigation as a whole would be justified. Or in Mr. Davis' words, 'if Dr. Moignard's work has done no more than demonstrate impartially that oxide purifiers work better when they are loaded to about double the traditional figure, that itself is worth hundreds of thousands of pounds in capital expenditure to the industry.'

It may be claimed then that the problem of the trouble-free operation of the oxide purifier is so far solved. But we do hope that this success will do nothing to retard the development of the newer methods of hydrogen sulphide removal—first, we suggest, in the use of synthetic oxides of definite composition in the orthodox box or variations of it, and then in the application of the new techniques outlined by Dr. Hollings, particularly those susceptible of continuous and definitely controllable operation.

FREE GAS

DISCOVERY OF NATURAL GAS in the garden of a three-bedroom bungalow near Newcastle-under-Lyme, Staffs, has enabled Mrs. Pearce, the mother of a West Midlands Gas Board employee, to light and heat her home without gas bills. Whether the gas comes from a coal seam or whether it is marsh gas is not known. It was first observed by Mrs. Pearce's late husband, an engineman at Madely Colliery, whose efforts to grow flowers in the garden were frustrated by the presence of the gas which was found to burn brightly when lighted. He sunk an inverted boiler in the ground and piped the gas, which needed no pumping, into the bungalow where the free and plentiful supply was connected to the cooker, gas fires, wash boiler, and a number of lighting burners. It is reported that when Mrs. Pearce goes out shopping she leaves the gas burning, because it is cheaper to do that than to strike matches to light up on her return, but when she goes away for longer periods she operates a valve which releases the gas to the outside air. Mr. W. E. Clarke, Mrs. Pearce's son, employed at the North Staffs divisional offices of the West Midlands Gas Board, spends part of his time sending out gas bills. His mother's name is not on his books.

CONSUMERS' COUNCILS

INVESTIGATIONS by local Fabian Societies into consumer representation in the nationalised industries, and particularly in gas and electricity, have led to the conclusion that while the achievements of the consultative councils during their first three years have justified their existence, they have not made the impact on the public that their creators anticipated. Our own view, based on attendance at meetings of several of the councils since September, 1949, is that they have yielded a lot of 'news' which would not otherwise have passed from board to consumer and lent weight to consumers' grievances that might have received little attention had they been screened from publicity. There is much in the Fabian Research Pamphlet No. 155 with which many people will agree. So long as gas or electricity supply is satisfactory the public is not interested in either the board or the council; indeed the pamphlet, referring to the annual reports, goes so far as to say 'it is doubtful if they are read by one in 10,000 consumers . . . if an enterprising citizen obtained an area board's report from the Stationery Office he might have difficulty in finding the council's report concealed among the appendices at the end; and having found it, it is unlikely that he would find it stimulating.' Further comment on the pamphlet will be found on p. 143.

Personal

Mr. W. E. Nicholson, A.C.C.A., Senior Accountancy Assistant, Headquarters Staff, has been appointed Group Accountant, Western Group, Northern Gas Board.

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Mr. W. J. Higgins has joined the sales organisation of Master Gas Cookers, Ltd. Mr. Higgins, who has been connected with Ascot Gas Water Heaters, Ltd., from the inception of that company until the end of last year, commences his duties immediately.

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Mr. Ian Simpson, who has been Manager of the Neilston district, Renfrewshire group, Scottish Gas Board, has been appointed Manager of the Newmilns district, Ayrshire.

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Mr. H. B. Bassett, B.A., B.SC., first engineering assistant at Windsor Street works, Birmingham, has been appointed Assistant Engineer at the Swan Village works, Birmingham, of the West Midlands Gas Board.

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Mr. James M. Dow, who has been Group Manager at Paisley for the past seven years, has been appointed Controller of the Lanarkshire group, which is raised to divisional status. Starting with the Perth Corporation Gas Department under Mr. David Vass, Mr. Dow in 1933 became Assistant Manager at Kirkcaldy. Four years later he was appointed Manager and held his post until the spring of 1946, when he was appointed Manager at Paisley. On nationalisation he was appointed Group Manager of Renfrewshire.

Obituary

Mr. Robert Chapman, formerly a Director of the old Cleethorpes Gas Company, has died aged 86.

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Alderman Horace J. Martin, who from 1923 until the nationalisation of the gas industry was a Director of the Ely Gas and Electricity Company, and for some time Chairman of Littleport Gas Company, has died aged 90.

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Mr. John Henry Ranft, formerly District Service Manager of Lytham St. Annes, died at his home, 20, Berwick Road, South Shore, Blackpool, on January 5, aged 62. Mr. Ranft had contributed over 40 years in the industry, with service 1908-1911 at Tipton; 1911-1912 at Nuneaton; 1913-1919 at Lancaster; and as Engineer and Manager at Lytham St. Annes from 1919 to 1951, and as District Service Manager from 1951 to 1952, when his health deteriorated. He was a member of the Institution of Gas Engineers.

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Mr. R. W. Wood, Manager of the Commercial district of the North Thames Gas Board, died recently at the age of 61. Joining the Commercial Gas Company in 1907, Mr. Wood worked in the rental department for a short time before transferring to the secretary's office. In 1940 he became the company's accountant with a seat on the management committee, and nine years later was made joint secretary. Finally, on the formation of the North Thames Gas Board in 1949, he was appointed District Manager. In an appreciation the *Thames Gas Magazine* says: 'Many of us in the Commercial district had the pleasure of knowing or working with Mr. Wood for the greater part of his 45 years here, and the shock of his passing was the greater because he was working as usual only the previous day. He had then seemed his usual alert and genial self. An active sportsman himself, he gave most enthusiastic support to our Sports and Social Club, where the warmth of his personality was especially appreciated.'

Members of the Institution of Gas Engineers are invited to attend the meeting of the Institution of Heating and Ventilating Engineers at the Institution of Mechanical Engineers, Storey's Gate, S.W.1, on February 4, at 6 p.m., when a paper on 'Gas-fired Central Heating Units and Conversions,' will be presented by L. W. Andrew, B.A., B.SC., and A. D. Billingham.

Gas Price Warning.—Mr. Sydney Smith, Chairman of the East Midlands Gas Board, warned the East Midlands Gas Consultative Council at a meeting in Nottingham on January 6 that any further rise in costs would make it difficult to avoid increased gas charges. He pointed out that during the last three or four months increased freight charges, together with increased wages and salaries, were costing them something like £250,000 in a full year. The Board was anxious not to raise the price of gas, but if costs continued to increase they might have difficulty in not doing so.

Weather Conditions were blamed by the East Midlands Gas Board at Leicester when it admitted owning an unjust weighing machine. Mr. F. A. Mallett, prosecuting on behalf of Leicestershire County Council, said a weights and measures inspector found that loads of coke being delivered from a lorry were under weight. At Wigston Magna gasworks, where the coke had been weighed, the inspector saw a machine which, although empty, was recording a weight of 63 lb. Mr. Mallett said there had been 'considerable negligence' by the works manager and complete indifference by the man who operated the machine. Mr. N. C. Hilditch, defending, said the inaccuracy was caused mainly by ice on the weighbridge. The machine would have been adjusted by the works manager, but he had been called away on business. A maximum fine of £5 was imposed.

News in Brief

In Reviewing last week the programme for the forthcoming Sales and Service Conference we implied, in reference to the session on 'New Housing,' that the South Eastern Gas Board contained no examples of new towns. We hasten to mention that one of the earliest of the new towns—namely, at Crawley—is, of course, in this area; and much credit is due to the South Eastern Board for this pioneer work.

A Second Plant for the continuous distillation of crude coal tar by the Koppers vacuum process is being built by the Gesellschaft für Teerverwertung m.b.H. at its Meiderich works. The plant will have a daily throughput of 400 tons of tar, and be one of the largest units of its type in Europe. It is expected to be ready for operation by about the middle of this year, and will bring the capacity of the Meiderich works back to its level of 1939.

Robert Blair Fellowships.—The next award of the Robert Blair Fellowships will be made in April. They are offered annually to enable the holders to pursue a course of advanced study or research in applied science and technology in the Dominions, the United States, or in other foreign countries. The value of the awards, if the country selected should be Canada or U.S.A., may be in the neighbourhood of £900. Applications should be made to the Education Officer, London County Council, County Hall, S.E.1. The closing date is January 21.

The North Western Gas Board has notified people who paid a security deposit on the installation of quarterly gas meters that they are to have their deposits returned with accrued interest. The Board retains the right to continue to ask for and retain deposits on meters in exceptional cases. In some cases the deposits were paid as long ago as 1920, and in the whole of the area it is estimated about £229,000 plus £83,000 interest will be paid out to 205,000 customers.

Drakes of Halifax, Ltd.—New companies registered, according to information supplied by Jordan & Sons, Ltd., Company Registration Agents, include Drakes of Halifax, Ltd., Shay Lane, Ovenden, Halifax. To acquire the whole or any part of the business of constructional gas and carbonising engineers carried on by Drakes, Ltd., from Ovenden Works, Shay Lane, Halifax. Nominal capital: £10,000 in £1 shares. Directors: J. A. Drake, Wildcroft, Ogden, Halifax; F. D. Drake, Syke House, Greetland, Halifax; E. M. Drake, The Poplars, Law Lane, Southowram, Halifax.

Germanium from Residual Tar Oils.—According to a Tokyo report, technicians of the Tokyo Gas Co., Ltd., and a Japanese Government research institute, claim to have found an entirely new and effective method of extracting germanium from residual tar oil, which contains some 0.0001% of the metal. By the new method, the percentage of germanium contained in the tar oil can be raised, the Tokyo Gas Company reporting that it has already produced the metal in its laboratory at a rate of 10 grammes a day from 10 tons of tar oil. The company is now speeding up the construction of a new plant for the production of germanium at the annual rate of 100 kilogs.

Diary

Jan. 22.—Midland Juniors: Half-day Visit to B.S.A. (Tools), Ltd., Birmingham.

Jan. 29.—North Thames G.C.C.: Caxton Hall, Westminster, 2.30 p.m.

Jan. 30.—London Juniors: Short Paper Meeting, 178, Edgware Road, W.2. 6.30 p.m.

Jan. 30.—London Juniors: 'The End of the Line,' Miss A. C. Badcock (Watson House); 'Handling and Preparation of Iron Oxide Mixture,' G. F. Roberts (Kensal Green); 'Effect of Air Vitation on the Combustion of Instantaneous Bath Water Heaters,' C. H. Taylor (Watson House); and 'Ladder Pilots for Central Heating Units,' F. C. W. Biggs (Watson House), 178, Edgware Road, W.2. 6.30 p.m.

Jan. 30.—Scottish (Western) Juniors: Annual Dance. Georgic Restaurant, Glasgow.

Jan. 31.—Yorkshire Juniors: 'Fuel Efficiency,' Dr. A. Fells. Sheffield.

Feb. 2.—West Midlands G.C.C.: 'Dudley Room,' Queens Hotel, New Street Station, Birmingham. 2.30 p.m.

Feb. 3.—Midland Juniors: 'Medical Service in the Gas Industry,' Dr. F. H. Tyrer.

Feb. 3.—South Eastern G.C.C.: Caxton Hall, Westminster, S.W.1. 2.15 p.m.

Feb. 4.—Institution of Heating and Ventilating Engineers: 'Gas-fired Central Heating Units and Conversions,' L. W. Andrew and A. D. Billingham; at the Institution of Mechanical Engineers, Storey's Gate, S.W.1. 6 p.m.

Feb. 6.—Midland Section, I.G.E.: 'Oxide Purification in Towers,' R. J. Warr and E. T. Pickering (first presented at the annual meeting of the Institution of Gas Engineers in June, 1952); Queen's Hotel, Birmingham, 2.30 p.m.

Feb. 6.—Scottish (Western) Juniors: Paper by G. Scott, Uddingston.

Feb. 10.—Institution of Heating and Ventilating Engineers: 'Automatic Controls for Heating Equipment,' K. Ernest. Cardiff.

Feb. 11.—London Juniors: Evening Visit, 6 p.m.: H. W. Nevill, Ltd., Leytonstone Bakery.

Feb. 10.—Wales and Monmouthshire (South Wales Sub-Section), I.G.E.: 'The Gas Manager and the Town Hall,' D. H. Griffiths.

Feb. 14.—Scottish (Eastern) Juniors: Short Paper Day; Dundee.

Feb. 17.—London and Southern Section, I.G.E.: 'Preventive Maintenance with Particular Reference to Gasworks Plant,' W. Morland Fox. 17, Grosvenor Crescent, S.W.1. 2.40 p.m.

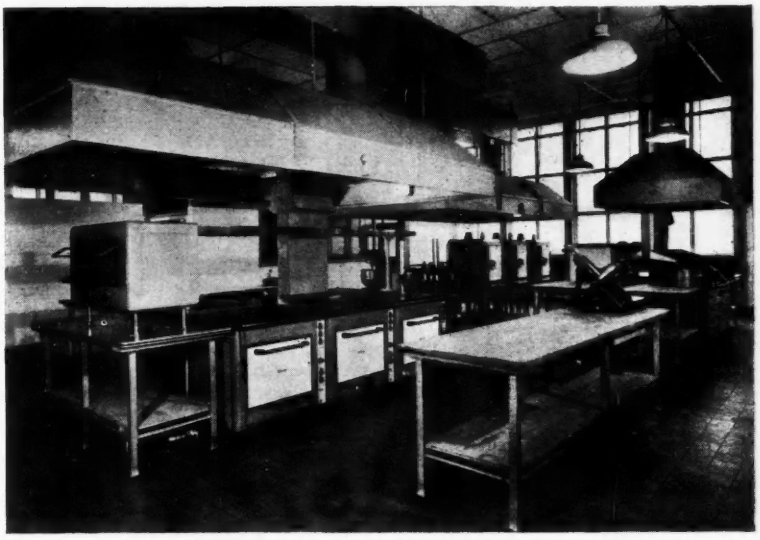
Feb. 18.—Institute of Fuel: Joint Meeting with Stanlow Branch of the Institute of Petroleum. 'Methane at Point of Ayr Colliery,' J. S. Young. Grosvenor Hotel, Chester. 7.30 p.m.

GAS CATERING AT HATFIELD TECHNICAL COLLEGE

HIS ROYAL HIGHNESS the Duke of Edinburgh recently opened the new Hatfield Technical College for the Hertfordshire County Council. Situated in the north-west wing is a self-contained catering unit, the kitchen of which is capable of providing a total of 750 main meals for the students' dining hall, principal's and staff dining rooms. All the modern kitchen equipment was supplied by Benham & Sons, Ltd., who also carried out in close co-operation with the architects the extensive kitchen planning.

A feature of the cafeteria service counter in the students' dining hall is an independent service section for tea and coffee. This was incorporated to enable beverages to be served either with the main meal or taken after it, without the inconvenience of re-queueing. There is also, in another part of the building, a small cafeteria bar for tea and light refreshments.

All the kitchen departments are planned in proper sequence, and the various groups of cooking equipment have been combined in island positions nearest to their appropriate preparation sections. Separating the kitchen from the service area are two built-in hot closets which are stand-mounted and have sliding doors on both sides—allowing direct access from the kitchen to the hot service counter and providing for a constant supply of cooked foods to be stored and readily available when required.



A view of the kitchen showing the 6-unit 'Solid-Top' gas range, three gas pressure steaming ovens and, on the right, a 2-unit gas heated deep fat fryer.

Cooking apparatus manufactured by Benhams includes a 6-unit 'Solid-Top' gas range, one unit having an open flame boiling top; a preparation table is situated at one end of the range with a 32 in. gas griller and toaster mounted over; also three gas-heated wet steam ovens, two elevated gas ovens, three 30-gal. gas boiling pans with bower barffed inner pans, one 30-gal. milk and porridge boiler, hot and cold cafeteria service counters, stainless steel sinks and drainers, and preparation tables and bain maries. The company also supplied and installed a wide range of labour saving kitchen machines, together with a Still boiler and tea and coffee set, two Jackson tea and coffee sets and a Hobart dishwashing machine.

Research on Consumer Representation

PUBLISHED by Fabian Publications, Ltd., 11, Dartmouth Street, S.W.1, at 9d., *Consumers' Councils*, by Mary Stewart, is a thought-provoking pamphlet based on investigations made by Fabian research groups into the working of consumers' councils in the gas and electricity industries. The study has been written up from their reports; it describes the way in which the existing machinery works and seeks to assess its value, and finally the author makes suggestions for improving the service which could be given to the consumer.

Optimism expressed by Mr. E. Shinwell and Mr. Hugh Gaitskell during the committee stages of the Nationalisation Acts has not, in the author's view, been substantiated, mainly because of (a) the power of the council chairman who, as a salaried member of the board, tends to dominate the council and thereby restrict (albeit unintentionally) the interest and activities of his colleagues; (b) the position of the council secretary who, as a board employee, gives the board undue power over the council and deprives members of the council and its committees of responsibilities which they should take; (c) the impression that the councils are not independent bodies but part of the board machinery, arising from the fact that so many meetings are held on board premises; (d) failure to make adequate use of local authorities; (e) lack of provision for council members to exchange views with members of other councils; and (f) absence of a research organisation to which council members could apply for advice on technical matters.

The pamphlet suggests that to make the councils—all of which, it urges, should be called consumers' councils—more effective, (1) the quarterly meetings with the Minister now restricted to chairmen should be opened to deputy chairmen and one other member; (2) the council should appoint its own secretary; (3) representatives of consumers' councils in all the nationalised fuel industries should meet periodically to discuss problems of mutual interest; (4) district committees should be reconstituted, each committee acting on behalf of consumers of every kind of fuel; (5) all meetings should be open to Press and public; (6) there should be a small central research organisation; and (7) annual reports should be published and laid before Parliament as separate documents.

In a foreword Mr. Gaitskell, who was Minister of Fuel and Power when the councils were appointed, says he finds the idea of a combined local fuel committee particularly attractive. He would go further and suggest the replacement of all gas and electricity consultative councils by regional fuel committees covering coal as well.

Commercial Policy Committee

THE Gas Council has appointed, under the chairmanship of the Deputy Chairman, Mr. Henry F. H. Jones, a Commercial Policy Committee on which all area boards are represented.

The functions of the committee will be to co-ordinate the activities of the Commercial Managers' Committee, the Industrial Gas Development Committee, and the Publicity Representatives' Conference, and to consider and to make recommendations, either to the Gas Council or to area boards, on subjects affecting the commercial policy of the gas industry as a whole. The committee will be responsible to the Council for the general conduct of national publicity. The constitution and functions follow the pattern of the other main committees which the Council has appointed to carry out co-ordinating and other duties.

De La Rue Open Infra-Red Research Station

USE OF ADJUSTABLE TUNNEL

AT a special Press view on January 8 we were introduced to the new infra-red research station of Thomas De La Rue & Co., Ltd., in Kenilford Road, Balham, S.W.12. We use the word *new* in relation to the function of the premises rather than to the building itself; for the latter was once a dairy—which takes one back to the days when we suppose cows browsed peacefully beside the country lane which is now the Balham High Road. Though a far cry from milk production to infra-red research, the building (which has since been used as a store for the firm's nearby Cavendish Works) is eminently suitable for its new purpose, and the experiments conducted there should prove of considerable benefit both to the gas industry and to industrialists concerned with this method of finishing.

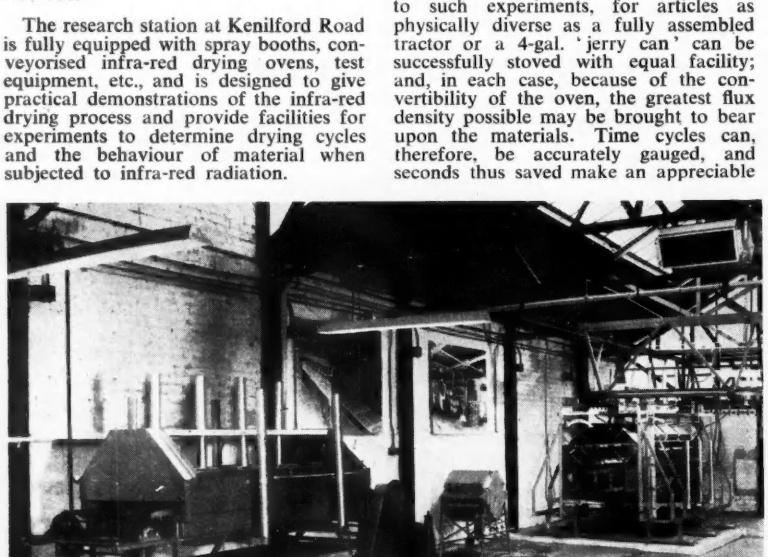
Up to the present time little concrete data have been available on the behaviour of various materials when exposed to infra-red radiation, and the effect of 'shadows,' irregular shapes, etc., and such information that could be obtained has not been fully reliable owing to the imponderable factors which must inevitably exist when relationship of shape, flux density and material is not determined. This has sometimes resulted in the construction of equipment not ideally designed for a particular process, tending to cause, in some quarters, a lack of confidence in a method of heat application that is, in general, admirably suited to cope with modern production methods.

The research station at Kenilford Road is fully equipped with spray booths, conveyorised infra-red drying ovens, test equipment, etc., and is designed to give practical demonstrations of the infra-red drying process and provide facilities for experiments to determine drying cycles and the behaviour of material when subjected to infra-red radiation.

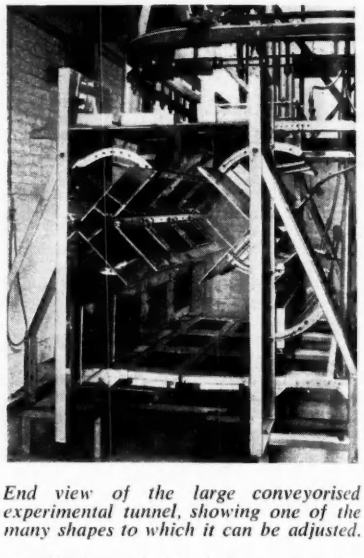
The experimental ovens at the station have been designed to give the utmost flexibility of shape and heat control, and this, coupled with infinitely variable conveyor speeds, ensures that time cycles can be determined on the actual article to be processed. It has long been recognised that in an application where drying times have been reduced to minutes, experimenting with the actual medium to be used, without applying it to the article to be finished, is apt to give a misleading picture.

High Degree of Accuracy

With the adjustable tunnel, however, a high degree of accuracy can be given to such experiments, for articles as physically diverse as a fully assembled tractor or a 4-gal. 'jerry can' can be successfully stoved with equal facility; and, in each case, because of the convertibility of the oven, the greatest flux density possible may be brought to bear upon the materials. Time cycles can, therefore, be accurately gauged, and seconds thus saved make an appreciable contribution, calculated over a year, to outputs on large production lines.



General view of the new infra-red research station at Balham, showing three experimental drying ovens.



End view of the large conveyorised experimental tunnel, showing one of the many shapes to which it can be adjusted.

The flexibility in shape of the experimental oven is attained by constructing each 'bank' of infra-red panels separately while the oven is divided laterally down the middle so that the two sides can be moved further apart or closer together to vary the width of the interior in accordance with the size of the article being handled. Each bank of side panels can be swivelled so as to give any desired angle of direction, to conform to the shape of the parts to be finished and thus bring the greatest possible flux density on a particular job. The ovens can be adapted to any type of gas, town, bottled, or natural.

Any manufacturer who is desirous of investigating the possibilities of infra-red process drying in solving his drying problems may now send his product to the Balham research station. There it will be sprayed with the finishing medium he proposes to use, and stoved in an oven which has been adjusted to the correct profile. The quality of finish and the exact time taken can thus be amply demonstrated, and from the accurate data obtained a suitable oven can be designed to give maximum efficiency in the processing of the particular product.

Close co-operation with paint manufacturers is being established and will be maintained in order that all possible technical assistance is available to the industrialist.

The visitors at the Press view were welcomed by Mr. M. B. Jordan (General Sales Manager, Industrial Division—Gas Group), while Mr. H. Wright (Technical Adviser on Infra-Red Equipment), who is in charge of the Balham research station, explained the design and function of the experimental ovens.

Institution Communication No. 410/201, being the discussion on the paper 'The Technical and Economic Aspects of Gas Manufacture' by E. O. Rose, is now available from the Secretary of the Institution, 17, Grosvenor Crescent, London, S.W.1, price 1s. 6d. post free inland.

Mr. Nabarro on National Fuel Policy

THE Scottish Section of the Institute of Fuel was addressed by Mr. Gerald Nabarro, M.P., on January 6 on the subject of a national fuel policy. He covered much the same ground as in his well-known pamphlet 'Ten Steps to Power'—a plan to conserve Britain's only indigenous fuel. The Government was courting economic disaster, doing incalculable harm to Western Europe in the next few years, he said, if it failed to produce and to implement a definite policy in the application of coal to our industrial and domestic needs. Mr. Nabarro briefly analysed the Ridley Report. The recommendations he would like to see were: (1) Tax relief in the next Budget to firms installing new fuel economising equipment; (2) coal conservation to be the paramount consideration in all new capital expenditure by nationalised undertakings; (3) heat - cum - power stations to be installed in large factories, industrial estates, and new townships; pass-out turbines in this equipment should treble the efficiency of power production; (4) a 10-year programme of railway electrification, notably in suburban areas and some routes in the Scottish Highlands where water power is available. Mr. Nabarro instanced the Perth-Inverness line as one eminently suitable for electrification. Not far away was Loch Sloy with a load factor of only 10%; nine-tenths stood idle used only at peak periods.

Tax-Free Appliances

The Government should sponsor the manufacture of standardised types of high efficiency domestic cookers and fires to be sold free of purchase tax. put large capital resources in the hands of the gas industry—by far the most effective coal economiser available to the nation—put sixpence a ton on the price of coal to equip a fuel advisory organisation with money and power to implement an imaginative fuel policy for the nation.

Despite the £30 mill. which, in recent years, had been poured into the coal industry, the result from the point of view of coal winning had been most disappointing. And so long as production of coal increased as slowly as it did today redoubled efforts were necessary to conserve fuel by allocating gas and electricity to their proper spheres, directing each to its best purpose, using each where most suited to the particular job, reducing the nation's internal coal bill.

Reverting to domestic appliances, Mr. Nabarro said there were 350 different designs of solid fuel grates with efficiencies ranging from 20 to 40%. He suggested that manufacturers should concentrate on a small number of the designs of the highest efficiency, on the installation of these on the new houses and the replacement of old inefficient equipment in existing houses. Later, he claimed that every house in the country should be carcassed for gas for cooking, water heating, and space heating.

Referring to the relative capital cost of electrical generating plant and gas producing units, Mr. Nabarro said that the latter gave three times the potential heat value for the same expenditure. Ten years hence the B.E.A. would be using somewhere around 60 mill. tons of coal per annum. While they continued to ration coal to the domestic consumer they would have peaks. 'Topping-up' against the winter cold was done mainly by electricity, unrationed, not abating but forcing up the peak load of electricity. The householder had frequently no choice but to plug in the electric appliance until the deranged fuel policy was drastically put in order.

Mr. Nabarro disputed the claim of the B.E.A. that it burned only coal which other industries could not use. He quoted a Government statement that the percentage of such coal used by the Authority was almost *nil*. The distribution of coal itself needed serious checking and correction; considerable quantities of coal of unsuitable quality, either too good or too poor for their purpose were being indiscriminately despatched.

Raw coal, he said, had a 100% conversion value for export. The use of more gas and the more efficient generation and use of electricity would leave more coal for export.

"Britain cannot achieve financial solvency or economic stability in the years ahead without restoring the pre-war scale of coal export. In 1952 we invested £250 mill. in the fuel-power industries, an amount equal to the nation's capital investment in the housing programme.' The country's most vital need was the conservation of coal.

Time for discussion was short. Sir Patrick Dollan, Chairman of the Scottish Fuel Advisory Council, said the problem was a national one. There was no such thing as Tory, Liberal, Socialist, or Independent coal. The fuel problem must be tackled on national lines. Mr. D. D. Burns, Deputy Chairman of the Scottish Gas Board, said that those engaged in the gas industry regarded the attainment of the highest possible efficiency as a sacred trust. The Scottish Gas Board would welcome a national fuel policy.

LONG SERVICE AT NEWPORT

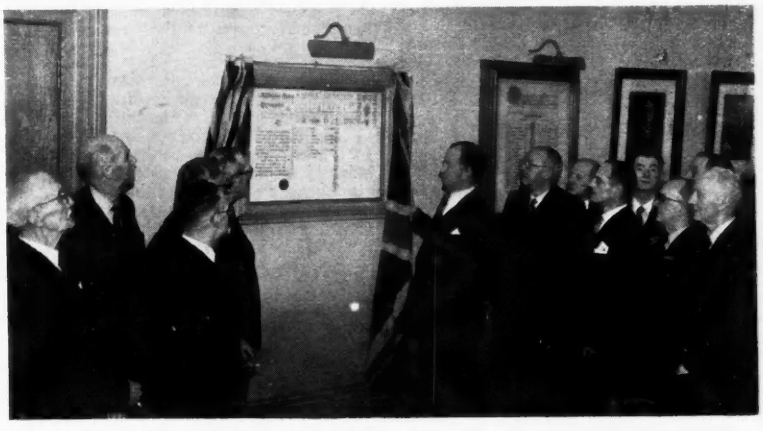
AT the offices of Newport gas undertaking, Mr. T. Mervyn Jones, Chairman of the Wales Gas Board, presented long service certificates to employees and unveiled a roll of honour upon which the names inscribed were: P. F. Gales, T. A. Mills, F. G. Evans, W. E. Crowley, P. L. Pugsley, J. F. Rust, R. S. Snelling, P. R. E. Plaisted, A. H. Cane.

Mr. Jones paid tribute to the loyalty of these members. They held a unique record of service (averaging 49½ years), and had inherited a great tradition of efficiency and integrity, particularly in regard to the standard of approach to consumers. Mr. Jones referred with regret to the absence of the General Manager and Engineer of Newport undertaking, Mr. J. F. Rust, whose name was among those on the roll of honour.

In Mr. Rust's absence, the chair was taken by Mr. A. H. Dyer, Deputy General Manager and Engineer, who proposed a toast to members on the roll of honour. Mr. Dyer said it was due to the efforts of all the employees, and particularly these, that the Newport undertaking had made such progress.

Mr. R. S. Snelling, J.P., Deputy Chairman, Wales Gas Board, and Mr. Percy Plaisted, an employee of the Newport undertaking, responded. Mr. Snelling expressed pleasure at meeting so many old friends, and said that the prosperity of Newport undertaking had been achieved by the combined efforts of all, and not of particular individuals.

Mr. A. H. Cane, Secretary of the Newport undertaking, proposed a vote of thanks to Mr. Mervyn Jones; and Mr. W. E. Crowley, Industrial Relations Officer, Wales Gas Board, thanked Mr. Dyer for occupying the chair.



Mr. T. Mervyn Jones, Chairman of the Wales Gas Board, accompanied by Mr. R. S. Snelling, Deputy Chairman, unveiling the roll of honour.

Attractions for Overseas Buyers

BRITISH Industries Fair promotion material is again this year telling buyers all over the world about the many other attractions Britain will have to offer in April, May, and June.

The Coronation is on June 2, and apart from the Coronation B.I.F. (London and Birmingham, April 27 to May 8), there is a variety of specialised trade and agricultural shows.

The first national exhibition devoted solely to the British glass industry will take place at the New Horticultural Hall, London, from May 11 to 16. This show follows up an expression of opinion in the 1946 Working Party report on hand-blown domestic glassware that 'changed and changing conditions will, in the future, demand that greater efforts be made to develop markets. . . .'

During the London Fashion Fortnight, May 27 to June 10, parades of the latest fashions will take place in leading London hotels.

The 40th Business Efficiency Exhibition will be held at Olympia, London, from June 16 to 26. This show is the national trade fair of Britain's office equipment industry, now the second largest in the world after the United States, which country, incidentally, is now claimed as its best overseas customer. The 1953 exhibition will be one of the biggest office equipment displays ever staged. Well over 80 major firms have indicated their intention of being represented.

The second exhibition staged by the British Instrument Industries will be held at Olympia from June 30 to July 11. The organisers intend to make this biennial exhibition a focal point in the scientific calendar and to gather a representative and up-to-date display of the British instrument industries' achievements.

Other principal known events where overseas visitors will be specially welcome include the following. Names and addresses are given where interested buyers should write for tickets and particulars:—

May 27 to 30.—Royal Ulster Agricultural Show, Balmoral, Belfast. Secretary, Royal Ulster Agricultural Society, Kings Hall, Balmoral, Belfast.

June 3 to 6.—Bath and West Agricultural Show, Bath. Admission 2s. 6d. to 10s., according to day and time. J. G. Yardley, M.B.E., Secretary, Bath and West and Southern Counties Society, 3, Pierrepoint Street, Bath.

June 9 to 11.—Three Counties Agricultural Show, Racecourse, Hereford. Free admission, car park, luncheon, and tea. Invitations in advance from Glynne Hastings, F.S.C., Secretary, Three Counties Agricultural Society, Berrington House, 2, St. Nicholas Street, Hereford.

June 23 to 26.—Royal Highland Show, Alloa, Scotland. Free admission for overseas visitors. Advance tickets from R. MacGregor Lemmon, B.L., Secretary, Royal Highland and Agricultural Society of Scotland, 8, Eglington Crescent, Edinburgh.

The Institution of Gas Engineers announces the publication of Communication No. 407/198, being the presentation, discussion and reply relating to the paper entitled 'Progress in Gas Purification' by Dr. H. Hollings, O.B.E., at the 89th annual general meeting last May. Copies are available from the Secretary of the Institution at 1s. 6d. each, post free (inland).

Coal Board Scholarships

ONE hundred university scholarships in mining engineering and allied subjects are offered by the National Coal Board to schoolboys who have reached a high standard in the General Certificate of Education or the Scottish Leaving Certificate, young men already in the industry who have university entrance qualifications, and certain graduates who wish to extend their qualifications for posts of high technical responsibility in mining.

This is the sixth year in which the Board has offered these scholarships, which cover the cost of education and carry maintenance allowances which may amount to more than £300 a year, with extra allowances for married men. Application forms, which must be returned by April 15, are obtainable from the Board's Education Branch at Hobart House, Grosvenor Place, London, S.W.1.

The Chairman of the National Coal Board, Sir Hubert Houldsworth, said recently that one of the factors limiting the rate of capital expenditure in the industry was a shortage of first-class technicians capable of planning and carrying out the necessary new projects and reconstructions. The scholarship scheme is one way of helping to make good the shortage of personnel of this calibre.

Forty-one scholarship winners graduated in 1952 and went into the industry or carried on research at the universities. Nineteen of them were already in the industry when awarded scholarships, and the remaining 22 came direct from school.

After graduation the students normally do three years' directed practical training in the industry, but a few who had considerable experience in the industry before going to the university went straight to responsible jobs.

Making Science Work

SIR CHARLES ELLIS, F.R.S., member of the National Coal Board, was the principal guest at the annual luncheon of the British Industrial Measuring and Control Apparatus Manufacturers' Association (BIMCAM) in London on January 13. Responding to the toast of the guests, he said the members of the Association could be proud of the way in which they had grappled with changing events; and the rapidity with which the research instrument was made into a production instrument was a remarkable achievement. To know was to live, and the only way to know was to measure. More and more basic industries, including coal-mining, were following the lead of the most modern industries, such as that of atomic energy, in applying this basic principle to all their activities.

Sixty-two members of BIMCAM and their guests heard Mr. W. G. Ardley, President, propose the toast of the guests.

Mr. L. S. Yoxall, Chairman of the Association, expressed disappointment with the terms of the £1 mill. scheme for Government loans to industry to increase fuel efficiency. It was common knowledge that measuring instruments would give a greater fuel return than almost any other type of equipment. Despite this, measuring and control apparatus had not been included in the Government list of equipment qualifying for the loans. In addition, the amount of the loans envisaged was inadequate.

Mr. E. B. Moss, President of the Society of Instrument Technology, proposing the toast of BIMCAM, referred to the way in which large sums could be saved by the provision of instructional literature of a high standard. These instructions, supplied by instrument manufacturers, dealt with the installation, maintenance and servicing of their equipment, and great attention was paid to this point in the United States. He even hazarded the opinion that poor instruments could be made acceptable if they were accompanied by good literature, though this was denied by Mr. Yoxall, who stated that good instruments needed no literature at all.

Mr. Ardley welcomed new members of the Association: British Pitometer Co., Ltd., Drayton Regulator & Instrument Co., Ltd., and Sunvic Controls, Ltd. The 27 firms now in BIMCAM represent more than 90% of the productive capacity of the industrial instruments industry in Great Britain.

An important activity of BIMCAM this year will be the organising, with related associations, of the 2nd British Instrument Industries Exhibition at Olympia from June 30 to July 11.

British Standards Institution

THE FORMER Government hospitality centre in Park Street has been leased to the British Standards Institution for use as offices.

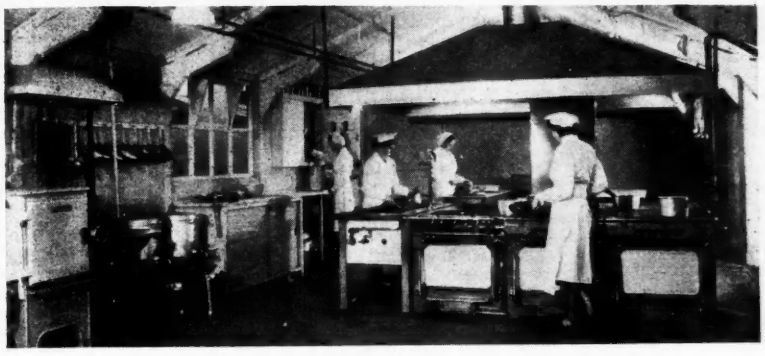
Although the total floor area at Park Street will not differ very greatly from that now occupied by the Institution in Victoria Street and Gillingham Street, concentration of the work in one building will aid efficiency and economy and will provide adequate facilities under the same roof for the 3,800 committee meetings which B.S.I. convenes annually. These committees are manned by experts from several hundred industries, together with representatives of the distributive trades and of users and consumers.

GAS EQUIPMENT IN NEW CATERING SCHOOL

ANOTHER step forward by the Wales Gas Board in making Mr. Therm play a worthy role in the important Welsh tourist industry, is that of the new Hotel and Catering School at Llandudno. This school has recently been opened by the Caernarvonshire Education Committee and is the only one of its kind in North Wales which provides training for students of both sexes who have entered or wish to enter the hotel and catering industry.

The purpose of the school is to offer a basic knowledge of the various departments of a hotel or catering establishment so that students who have completed the course should become valuable employees and, later, rise to positions of responsibility in the trade. During the summer vacation, students are expected to take full-time employment in catering establishments recommended by the Principal of the school. A report on their work and personal qualities is usually furnished by the employer and this report is taken into account in the final assessment of the students' progress on the completion of the course.

The school is constructed as a replica of a modern hotel, possessing the most up-to-date equipment which students may be required to use in the trade. Adjoining the kitchen is a modern restaurant where the students will receive training in counter service and waiting. The kitchen is equipped with the best of modern equipment and includes: a Radiation 6 unit oven central Grosvenor range, Grosvenor bain marie, and 27 in. Salamander on stand; Collins Handyman confectioner's oven; Stotts No. 8 hot cupboard, No. 1 steamer, and stockpot stands, and junior café set.



Students at work with modern gas appliances.

The layout of this equipment in the kitchen and servery is based on the pattern that experience has found to be the most suitable for the operation of the modern kitchen. The equipment has been installed by the Wales Gas Board in close co-operation with James Stott & Co., Ltd., of Oldham.

Miss Betty Blythe (Home Service Adviser to the Colwyn Bay group) and Mr. J. A. Stretton (Assistant Industrial Gas Enginer, North Wales) are assisting in giving a course of lectures on the preparation of dishes and in the operation and care of catering appliances.

Electro-Mechanical 'Nose'

AN ultra-sensitive electro-mechanical 'nose'—one of the first of its kind—will give warning of any gas leakage in a 5 mill. cu.ft. waterless holder at the North Point holder station, Baltimore.

According to the *Canadian Gas Journal*, the brain of the installation is a combustible gas alarm developed by the Mine Safety Appliances Company, of Pittsburg. Air sampling intakes are placed at six strategically located points above the piston. Sampling is continuous, and each sample is automatically analysed in sequence, the presence of gas being indicated on a central panel in the control station. There is a signal light on the panel for each of the six sampling-analysing circuits. If the concentration of gas in a sample should reach a predetermined percentage of the lower explosive limit, the indicator needle would move to the red portion of the dial, a light would flash on, and a klaxon would sound its warning. Operators would thus know at a glance where the leakage had been detected.

In the detection instrument each sample passes over the first of a pair of heated, sensitised platinum filaments which form a balanced electrical circuit. The second filament, a compensator, is sealed in a cell containing uncontaminated air. Any combustible in the air sample would burn on contact with the detector filament, and the increase in temperature would produce a direct increase in electrical resistance of the platinum wire, which would upset the balance of the circuit in direct proportion to the gas concentration, closing a magnetic contact and energising the alarm signal circuit of panel lights and klaxon.

The Alberta Government has announced that for the first time a sale of natural gas rights will be held on February 6 without accompanying oil rights. Provision has been made in the regulations to permit companies to acquire oil rights later should petroleum be discovered during the search for gas.

Newcastle Output

IN SPITE of the effects of an unusually warm spring and summer, which resulted in consistently decreased deliveries throughout the months of March to August inclusive, amounting in total to 667 mill. cu. ft. below the corresponding demand in 1951, the output of the Newcastle division of the Northern Gas Board for the calendar year 1952 has exceeded that of 1951, and establishes a new annual record delivery for the division of 17,206 mill. cu. ft.

With temperature conditions fairly comparable during October, November, and December, the output of 4,914 mill. cu. ft. during these three months in 1952 shows an average increase per day of 3.4 mill. cu. ft., or 6.7%.

The availability of a substantially higher base load output from the new Howdon works, together with the assistance of its associated C.W.G. plant, has enabled these increased loads to be carried without any recourse to pressure cutting.

LEEDS LECTURES

MR. F. H. METCALF, B.SC., Assistant General Manager, East Midlands Division, National Coal Board, gave the first two of a series of six lectures on by-product coking processes on January 19 in the Department of Coal Gas and Fuel Industries of Leeds University; the remaining four are to be given at 2 p.m. and 3.30 p.m. on January 26 and February 2. The lectures form part of a programme of special courses arranged by the Department in association with the Department of Adult Education and Extra-Mural Studies.

Eight lectures on the utilisation of solid and gaseous fuels are arranged as follows: Two lectures on 'Distribution of Gas' by F. I. Atkin, Chief Distributing Engineer, West Midlands Gas Board, at 2 p.m. and 3.30 p.m on February 9; two lectures on 'Industrial Gas Practice' by J. F. Waight, Engineer, Industrial Department, West Midlands Gas Board, at 2 p.m. and 3.30 p.m. on February 16; two lectures on 'Domestic Gas Appliances' by F. Brinsley, Technical Service Manager, Radiation, Ltd., at 2 p.m. and 3.30 p.m. on February 23; and two lectures on 'Domestic Solid Fuel' by J. S. Hales, Director of Domestic Appliances Laboratories, B.C.U.R.A., at 2 p.m. and 3.30 p.m. on March 2.

'Disposal of Waste Liquors Produced in Gasworks and Coke Ovens' will be the subject of two lectures by W. H. Blackburn, Research Chemist to the Joint Research Committee of the Gas Council and Leeds University, at 2 p.m. and 3.30 p.m. on March 9.

Four lectures on 'Refractory Materials' will be given by T. R. Lynam, General Manager of the Oughtibridge Silica Firebrick Co., Ltd., at 5 p.m. and 6.30 p.m. on March 10 and 17; and two lectures on 'Metallurgy' will be given by F. D. Richardson, Director of the Nuffield Research Group in Extraction Metallurgy, Royal School of Mines, at 2.30 p.m. and 4.30 p.m. on February 26.

Carbonisation Today and Tomorrow

AT a joint meeting of the Institute of Fuel with the Southern Section of the Coke Oven Managers' Association on January 8, at the Institution of Mechanical Engineers, London, Mr. H. D. Greenwood, M.SC., M.INST.GAS E., A.R.I.C., presented a paper on 'The Production of Gas and Carbonised Fuels—Today and Tomorrow.' The following is a synopsis of the paper:

The carbonising industries—coking and gas—use some 25% of the coal produced in this country, said Mr. Greenwood. The coking industry, which consists of two main sections—the plants operated by the N.C.B. and by the iron and steel industry, respectively—carbonises coal primarily to make metallurgical coke, but the N.C.B. coke oven plants supply in addition some 60% of the coke used by other industries. The gas industry supplies the majority of the coke used by domestic consumers.

The gas industry produces twice as much gas as the coking industry, although carbonising only about 15% more coal. A considerable proportion of the gas produced by the coking industry is used for internal purposes, and the quantity supplied to area gas boards represents about 13% of the gas made by the gas industry. Although both industries undertake high temperature carbonisation, the coking industry obtains its major revenue from coke and the gas industry from gas, and the economics of the two industries differ considerably.

It has been estimated that the output of gas by the gas industry may increase at the rate of about 3% per annum, and that this will necessitate the carbonisation of an additional 8 mill. tons of coal by 1960. To meet the increased requirements of coke for the steel industry and other purposes the coal consumption of the coking industry may increase by about 3 mill. tons over the same period.

Use of New Types of Coal

These increased demands for coal may necessitate considerable changes in the present arrangements of coal supplies. There may be insufficient high grade coking and gas coal available, and blending a proportion of lower grade coal will become necessary.

The availability of different grades of carbonisation coals and the new coal price structure may materially affect the future economics of both the gas and coking industries. It may be economic for the gas industry to develop methods of complete gasification which can use coals unsuitable for carbonisation. Much work is being carried out on this subject both in this country and abroad, and tests on British coals in Lurgi high-pressure gasification plant have recently been carried out.

Over the next few years about a third of the present capacity of the coking industry will have been replaced by new plant, and the present methods of coke production are thus established for some time ahead. The cost of new carbonising plants for both the gas and coking industries has increased very considerably in recent years, but this has to some extent been compensated by relatively lower operating costs due to improved techniques.

The consumption of coke for industrial and domestic consumers (excluding the iron and steel industry) has been increasing at about one-third of a million tons per annum, and corresponding to the increase in gas consumption the availability of coke may continue to increase at a similar rate. It would appear that in view of the shortage of carbonisation coals any larger expansion in the use of carbonised fuel may have to be based on the use of coals which are not normally used for carbonisation, and methods of production of domestic fuels from non-coking coals are being investigated.

The production of smokeless domestic fuels from non-coking coals will involve briquetting, but it may be possible by the use of new techniques, by which the rate of carbonisation can be materially increased, to reduce the costs of the actual carbonisation process.

DISCUSSION

Mr. R. Neumann (President, Coke Oven Managers' Association) pointed out the need to develop other markets for metallurgical coke; the coke-oven operators should not depend exclusively on the iron and steel industry. Also, he thought that the blast-furnace industry would have to concentrate on improving the design of their furnaces, so that they would be able to use cokes made from poorer coal.

Dr. J. Burns (North Thames Gas Board) emphasised the flexibility of the gas industry, which, he said owed its success to the fact that it could use as raw material either coking coal, coke, or petroleum oil. Also, the carbonisation process could be adjusted so as to produce a whole range of combinations of products. Thus 1 ton of coal could make either 15 cwt. of coke plus 40 therms of gas, or 10 cwt. of coke plus 74 therms of gas, depending on the dilution with blue water gas or producer gas. For peak-load generation the 'oil therm' was cheaper than the 'coal therm,' and for this and other reasons oil would continue to play a vital part in the gas industry. It was doubtful whether the N.C.B. would be able to sell non-coking coal so cheaply as to permit gas, made from it by complete gasification, to compete with gas made by carbonisation of coking coal.

Mr. R. J. Barritt (National Coal Board) pointed out that, in an area like South Wales, six industrial fuel gases were produced from coal—town gas, producer gas, blast-furnace gas, carburetted water gas, methane, and coke oven gas—as well as four different kinds of coke. The prices of all these fuels were interlinked, and no one could say what the right figure was for any one of them.

Mr. A. M. Wandless (National Coal Board) thought that the coke oven industry should secure a higher financial yield from its operations than it appeared to do on the basis of the author's figures. Coking coals were becoming scarcer and more expensive; the corollary was increased production and availability of high-volatile non-caking coals. For England and Wales the relevant figures were: Production of coals of Ranks 800 and 900—1938, 41 mill. tons (out of a total saleable output of 197 mill. tons); 1951, 48 mill. tons (out of a total saleable output of 188 mill. tons), plus 10 mill. tons of open-cast coal of the same type. Work was in hand to develop ways of using more of this class of coal for carbonisation.

Mr. F. S. Townend (Woodall-Duckham Co.) found it difficult to see an alternative to high temperature carbonisation if the object was the production of a low-price smokeless fuel, and it was unlikely that coals of lower quality could be used for the purpose. He thought that the author had exaggerated the rise in capital costs of coking plants.

Dr. W. Idris Jones, after surveying the researches into the thermal treatment of coal now being undertaken in this country and abroad, said that with certain coals otherwise suitable for carbonisation the bugbear was the sulphur content, which might be as high as 10%. The location of future new carbonising plant should be carefully chosen, bearing in mind the importance of coal blending; it might pay to install carbonising plants at centres of fuel consumption. N.C.B. research at Stoke Orchard had shown that coals of Ranks 203 and 205, containing up to 17½% volatile matter, could be carbonised satisfactorily. At lower carbonising temperatures the gas yield was high in hydrocarbons, while at higher temperatures it was rich in hydrogen.

Mr. H. J. Victory (Steel Company of Wales) mentioned a steelworks plant in South Wales where 45 different coals per week were used to give a suitable blend (V.M. range 18 to 30%). His company was eking out supplies of good coking coal by extending the range of size of coal taken for coking—*e.g.*, out of a consumption of 22,000 tons per week 5,000 tons was large and was crushed and mixed with the smalls.

Mr. F. Pearson (Ford Motor Co.) said that the problem of the dwindling resources of good coking coal was far more serious than would appear from the paper. Apart from blending, the problem should be tackled by attention to efficiency of operation of coking plant. Wet quenching should be abandoned in favour of dry coke cooling.

Conciliation and Arbitration in Industrial Disputes

By J. R. W. ALEXANDER, M.A., LL.B., F.C.I.S.,

Executive Chairman, Gas Officers Guild, and President, Institute of Arbitrators

THE words 'conciliation' and 'arbitration,' especially in industrial disputes, are commonly loosely used, 'arbitration' sometimes meaning no more than 'conciliation.' The distinction should be that the conciliator endeavours to resolve a dispute by assisting the parties themselves mutually to agree terms of settlement, whereas the arbitrator makes his own decision and imposes it upon the parties in the form of an award, they normally being obliged or having agreed to accept it.

Commercial Arbitration

Arbitration in commercial, professional, and similar disputes must be distinguished from arbitration in industrial disputes. Commercial arbitration normally falls to be conducted in conformity with the *Arbitration Act, 1950*, which, *inter alia*, makes irrevocable a written, unqualified reference to arbitration and renders enforceable in the Courts an award made under the Act.*

Commercial arbitration is a judicial process The arbitrator is in the position of a judge and, despite the latitude allowed, he must observe the ordinary rules laid down for the administration of justice and for the admission or rejection of evidence. He must reach a decision on the particular matters referred to him and must arbitrate on nothing else.

He is not a conciliator; the parties are entitled to the decision of the arbitrator they have appointed. Nevertheless, one of the advantages of commercial arbitration is that it is less likely to stimulate antagonism between the parties than proceedings in the Courts.

In these and many other respects commercial arbitration should be distinguished from conciliation and arbitration in industrial disputes. In fact, the two systems should be compared only with considerable caution, for in origin, purpose, and procedure they are very different.

Collective Bargaining in Industry

For 80 years past the State has recognised 'collective bargaining,' by which is meant the settlement of wages and working conditions by a bargain in the form of an agreement between employers (or associations of employers) and workpeople's organisations. This system of collective negotiation and compromise rests upon the principle of mutual consent and is now largely the responsibility of joint voluntary machinery established by employers' organisations and trade unions. Of all workers in industries and services of Great Britain, about 80% are covered by voluntary negotiating machinery, or by statutory wage regulation in trades or industries where organisation is inadequate on one or both sides.

Successive Governments have encouraged the establishment of joint negotiating machinery. Legislation to implement it (even when limited compulsion has been introduced) has insisted that resort shall have been had to such machinery, or some attempt made to reach agreement, before other measures are invoked.

Industrial Arbitration—Voluntary and Compulsory

To settle differences which cannot be resolved by the parties, or under the machinery established by an industry, resort may be had to the conciliation, arbitration, or inquiry provisions of the Conciliation Act, 1896, or the Industrial Courts Act, 1919, or to the services afforded by the conciliation officers of the Ministry of Labour and National Service.†

Despite the legal prohibition of strikes and lock-outs and the imposition of compulsory arbitration under the *Munitions of War Act, 1915*—both altogether exceptional measures—there developed during the 1914-18 War areas of unrest and unofficial action throughout the country. The common origin of this was in the shop stewards' movement, which had as its objective the devolution of authority to the workshop and the establishment of workers' control, on militant lines, of industry generally.

The situation deteriorated to such an extent that in 1916 the Government set up a Committee on the Relations between Employers and Employed, under the Chairmanship of Mr. J. H. Whitley, M.P., then Speaker of the House of Commons. The recommendations contained in the five reports of the *Whitley Committee* were far reaching and were adopted by the Government.

During the 1939-45 war, the decision again to render strikes and lock-outs illegal and to impose compulsory arbitration had to be reconciled, as in the 1914-18 War, with the maintenance, as far as possible, of the voluntary principle in the negotiation of wages and conditions of employment and the avoidance and settlement of disputes. The Conditions of Employment and National Arbitration Orders, 1940-50, purported to accomplish this, being based upon recommendations made by national bodies representative of employers and employees.

Joint Industrial Councils

The recommendations of the Whitley Committee were favourably received by organisations of employers and workpeople and included the:

(a) Formation in well-organised industries of joint industrial councils.

(b) Statutory regulation of wages in badly-organised trades.

(c) Establishment of a permanent Court of Arbitration.

(d) Authorisation of the Minister of Labour to hold enquiries into industrial disputes.

(e) Appointment of works committees representative of the management and the workers in individual establishments.

The Committee laid down as an over-riding consideration 'the advisability of a continuance, as far as possible, of the present system whereby industries make their own agreements and settle their differences themselves.' This has been, and still is, the determinant of the State policy in regard to intervention in industrial disputes.

Long before the Whitley Committee, voluntary joint machinery for the negotiation of terms and conditions of employment had been evolved to meet the varying needs and circumstances of certain trades and industries. But considerable impetus to the movement and greater uniformity resulted from the establishment of the joint industrial councils recommended by the Whitley reports. There are now 130 joint industrial councils, many embracing additional councils at area level.

Arbitration Machinery in Industry

Although the establishment in 1919 of the Industrial Court as a permanent Court of Arbitration and the empowering of the Minister to appoint Courts of Enquiry into industrial disputes, derived from Whitley recommendations, a number of industries had themselves long before set up local conciliation and arbitration boards. The oldest was established in 1869 by the manufactured iron and steel trades of the North of England, followed in 1872 by the Midland Iron and Steel Wages Board. Such steps were supplemented by the Con-

* *Arbitration.* J. R. W. Alexander, 1951 (London: Chartered Institute of Secretaries).

† *Industrial Relations Handbook*, (1944) and *Annual Reports* (September) of the Ministry of Labour and National Service.

ciliation Act of 1896 and the Industrial Courts Act of 1919. While, however, a number of joint industrial councils and other national negotiating bodies have provided for the reference of disputes to the Industrial Court or to arbitration under the Acts, other organisations have preferred their own arbitration machinery. Prominent among these are the tribunals covering railway staff, coal mining, co-operative service, Civil Service and London County Council staff.

Wages Councils and Catering Wages Boards

The recommendation of the Whitley Committee for the regulation of wages in badly organised trades resulted in the *Trade Boards Act, 1918*. This extended the *Trade Boards Act, 1909*, from a few 'sweated trades' to any trade in respect of which the Minister made a Special Order, on the grounds that no adequate machinery existed for the effective regulation of wages throughout that trade.

The Acts now in force are the *Wages Councils Act, 1945* and of *1948* and the *Catering Wages Act, 1943*, under which wages councils and catering wages boards are empowered to submit to the Minister proposals for fixing or varying minimum remuneration and for allowing holidays with pay. Catering wages boards may also make proposals for fixing meal or rest intervals.

Before submitting its proposals to the Minister, a wages council or board is required to publish them and to consider any representations received within a specified period, and may amend them having regard to the representations. The Minister is required to give effect to the proposals by means of a *Wages Regulation Order* unless he refers them back for re-consideration.

There are at present 60 wages councils and five catering wages boards.

Powers of the Minister

The *Conciliation Act, 1896*, and the *Industrial Courts Act, 1919*, make provision (a) for conciliation; (b) for arbitration by consent of both parties; and (c) for enquiry into industrial disputes.

Broadly, the Minister of Labour and National Service may refer disputes (a) to the conciliation officers of the Ministry; (b) to arbitration by the Industrial Court, by single arbitrators, or by boards of arbitration; and (c) to a Court of Enquiry or Committee of Investigation. The costs are borne by the Exchequer.

Arbitration awards under the two Acts are not legally binding on the parties, but since they are the result of joint application to the Minister they are invariably implemented. The representation of parties by counsel or solicitors may be allowed by the tribunal, but if either side is to be legally represented it is the practice for the other side to be notified of the fact beforehand. The proceedings are private and, except as to Industrial Court awards of general interest, the decisions of the tribunals are not made public without consent.

Although, under the Acts of 1896 and 1919, the Minister may take such steps as seem to him expedient to promote a settlement in any trade dispute reported to him by or on behalf of one of the parties, in practice no action is normally taken until any suitable negotiating machinery has been fully used. Even where there is no formal procedure the parties are expected to attempt to reach a settlement by negotiation.

Subject to these considerations, the services of the conciliation officers of the Ministry are available to the parties. They have rendered outstanding service by securing agreement in the determination of wages and conditions of employment and in avoiding or settling industrial disputes. Under the Conditions of Employment and National Arbitration Orders, 1940-50, alone the conciliation officers disposed of 1,745 reported cases.

Industrial Court

The Industrial Court was established by the Industrial Courts Act, following one of the recommendations of the Whitley Committee. It is a permanent and independent tribunal and is not in any way subject to Government or Departmental control or influence. It is not part of the judicial system of Great Britain. Its decisions are not enforceable, but when a decision is accepted, or acted upon, it forms a term or condition of the contract of employment.

The Court consists of persons appointed by the Minister of Labour and National Service of whom some are independent persons, some are persons representing employers, and some represent workmen; in addition one or more women have to be appointed. The *Industrial Court (Procedure) Rules, 1920*, permit the Court to sit in Divisions and allow the President to decide whether any case should be dealt with by a single member or by several members. They also allow the Court to appoint assessors.

If the members of the Court are unable to agree as to an award, the matter has to be decided by the chairman acting with the full powers of an umpire. In the event of a question arising regarding the interpretation of an award, the Minister, or any of the parties concerned, may ask the Court for a decision on the matter. Where necessary the Court will arrange for a further hearing before giving such a decision.

In addition to its arbitral functions, the Court may be asked to give advice to the Minister on any question connected with a trade dispute or on any other matter which, in his opinion, ought to be referred to the Court.

Since the Industrial Court was first established in 1919 its scope has been extended under the provision of later Acts. It has made more than 2,356 awards. In addition to all these statutory provisions, many industrial agreements provide for the reference of outstanding disputes to the Court and for the acceptance by both parties of the Court's findings.

Single Arbitrators and Boards of Arbitration

A single arbitrator appointed under the Conciliation Act, or the Industrial Courts Act, can have the assistance of assessors, but such assessors are not formally associated with the awards and the extent of their activities is a matter for the arbitrator to decide.

An *ad hoc* Board of Arbitration set up under the Industrial Courts Act is temporary in character and is constituted for the purpose of arbitration in a particular dispute. It is the practice to secure the consent of the parties to the arbitration to the chairman acting with the powers of an umpire, as in the Industrial Court. The Board consists of one or more persons nominated by the employers concerned, and an equal number of persons nominated by the workpeople concerned, under the chairmanship of a person nominated by the Minister. Usually there are only three members of the Board, a chairman and one representative from each of the two sides. In order to facilitate the selection by the parties of persons to act as members of such boards, it is incumbent on the Minister to constitute panels of suitable individuals. It frequently happens that the parties to a dispute put agreed proposals to the Minister regarding the constitution of the Board and usually the Minister accepts such recommendations.

The powers of a single arbitrator, or of a board of arbitration, technically cease with the issue of the award and questions of interpretation cannot, therefore, be referred direct by the parties to the tribunal. They must be submitted to the Minister, who normally requires the consent of both sides before referring any such question to the original board or arbitrator.

Industrial Disputes Tribunal

The *Conditions of Employment and National Arbitration Orders, 1940-1950*, provided that either party might report a dispute to the Minister, who had then to refer it for settlement through joint negotiating machinery if suitable machinery existed. In other cases the Minister might take such steps towards settlement as seemed to him expedient. If the dispute was not thus settled, the Minister had to refer it to the *National Arbitration Tribunal*. Any agreement, decision, or award which resulted from a reference by the Minister under the Orders, either to existing joint machinery or to the National Arbitration Tribunal, was binding on the parties. The Orders prohibited strikes and lock-outs unless the dispute had been reported to the Minister and had not been referred by him for settlement within 21 days of the date of reporting.

The 1940-50 Orders were revoked by the *Industrial Disputes Order, 1951*. This came into force on August 14, 1951, prior to which 4,510 cases had been reported. Of these 2,344 were referred to arbitration, 2,092 to the National Arbitration Tribunal.

The main features of the new Order, from the arbitration aspect, were the retention of the provision for compulsory arbitration and the replacement of the National Arbitration Tribunal by a similar body, the Industrial Disputes Tribunal.

The prohibition of strikes and lock-outs, however, was removed and, with the object of supporting voluntary machinery, the right to report disputes under the new Order was limited (apart from individual employers) to employers' organisations or trade unions represented on the joint negotiating machinery or, where there was no such machinery, to those representing a substantial proportion of employers or workers in the industry or section of the industry concerned. The Order, unlike the revoked Orders, contained no general requirements for employers to observe recognised terms and conditions of employment, but provided machinery for deciding if a particular employer should observe such conditions.

Courts of Enquiry

The Industrial Courts Act empowers the Minister to enquire into any trade dispute whether reported to him or not and, if he thinks fit, to appoint a Court of Enquiry, any reports of which have to be laid before both Houses of Parliament. The consent of the parties to the enquiry being held is not required.

Courts of Enquiry are primarily a means of informing Parliament and public opinion of the facts and underlying causes of a dispute. A Court is appointed only as a last resort when no agreed settlement of a dispute seems possible, and when an unbiassed and independent examination of the facts is considered to be in the public interest. It follows, therefore, that the power to set up a Court of Enquiry is used only sparingly. It is reserved for matters of major importance affecting wider interests than those of the immediate parties to the dispute.

While it is not the function of a Court of Enquiry to act as an instrument of conciliation or arbitration and a Court has no power to enforce a settlement, a Court may make recommendations upon which a reasonable settlement of the dispute can be based. Neither party to the dispute is bound to put into operation any recommendations which a Court may make. Experience has proved, however, that an informed and impartial public examination of the facts and circumstances has considerable value in providing a basis for further negotiations, leading to a settlement of the dispute.

The Court may consist of one or more persons selected and appointed by the Minister. The Chairman is always an independent person, but the other members of the Court may consist of persons representing, in equal numbers, employers and workers *outside* the industry concerned. No definite rules of procedure have been laid down by regulation, but the Minute of Appointment usually embodies certain rules which have in practice been found desirable. The Court may be authorised to require persons with knowledge of the subject matter to furnish information and, where necessary, to attend before the Court and give evidence on oath.

Committees of Investigation

The Conciliation Act enables the Minister to investigate the causes and circumstances of a dispute by appointing a Committee of Investigation, any reports of which do not have to be laid before Parliament. The Committee has not the same powers as a Court of Inquiry to call for information, but by its less formal nature it may adopt a more flexible procedure and be able to formulate proposals which form the basis of an agreed settlement of the dispute. A Committee may consist of one or more independent persons appointed by the Minister, or it may be constituted in the same way as a Court of Enquiry.

Conclusion

It will be seen that comprehensive conciliation and arbitration machinery is readily available for the avoidance or settlement of trade disputes. It upholds the principle of the voluntary determination of wages and conditions of employment. It ensures the impartial adjudication of claims before recourse is made to strike action or lock-out, thus serving the best interests of employees and employers and sparing the nation from the ill effects of industrial strife.

Increasing understanding of industrial relations and greater readiness to accept arbitration, together with improvement in the procedure to be observed by parties before an arbitration tribunal, would enhance the arbitral process. Nevertheless, the fact remains that existing conciliation and arbitration machinery is fulfilling a vital part in maintaining good relations between employers and employees and so contributing towards the industrial, commercial, and business prosperity of the country.

MIDLAND TAR CAPITAL

MIDLAND TAR DISTILLERS, LTD., announce that proposals for the provision of long-term capital, including capital required for the repayment of temporary bank borrowings, will be placed before shareholders at a meeting called for January 23.

A circular to shareholders states that during the first part of the company's post-war programme of capital construction—*i.e.*, up to June 30, 1951—the capital expenditure amounted to £1,050,000, of which £450,000 was provided by two issues of ordinary shares and £600,000 from the company's own resources. The remainder of the programme, which covers the period to June 30, 1954, involves further expenditure of £1,800,000, of which the company aims to find approximately £400,000 from its own resources. Additional long-term capital amounting to £1,400,000 is therefore required, of which some £800,000 will have been spent by the end of 1952. This sum has so far been provided by temporary borrowing.

As a result of the recent negotiations now completed, the West Midlands and East Midlands Gas Boards have agreed to subscribe between them about £500,000 towards the new capital proposed to be raised. The chairman explains that the company in its present form is largely the creation of members of his family, and that the family interests are now represented by Robinson Brothers, Ltd., a private limited company.

The gas boards have agreed to be content with less than a controlling interest so long as their holding and that of Robinson Brothers, Ltd., jointly represent more than 50% of the voting control of the company, and so long as the board of Robinson Brothers, Ltd., remains under the control of the present directors or persons approved by the gas boards.

Agreement with Area Boards

Accordingly, the financial agreement with the boards sets out to provide that the new capital to be raised should be issued in such a way that the result will be that all the ordinary and preference shares of the company will be held as to approximately 40% by the Gas Boards, 11% by Robinson Brothers, Ltd., and the balance of 49% by the general public.

It is proposed that approximately £700,000 of the £1,400,000 finance required should be raised by the creation and issue of debenture stock (to be privately placed) secured by a first floating charge on the company's undertaking and assets both present and future, including its uncalled capital (if any) for the time being, and carrying interest at a rate not exceeding 5% per annum. It is proposed that the stock should have a life of 25 years, but be subject to the company's right to redeem earlier. As regards the balance of the sum required, it is proposed that this should be raised by an issue of 575,000 ordinary £1 shares ranking *pari passu* with the existing issued ordinary shares of the company. For this purpose it is proposed to increase the authorised capital of the company from £1,000,000 to £1,500,000. It is proposed, if these measures are approved, to make the issue immediately following the meeting.

Coal Supplies for the South Eastern Gas Board

By A. G. GOSTELOW,
Coal and Shipping Manager, South Eastern Gas Board.

Paper presented to the London and Southern Section of the Institution of Gas Engineers, December 16.

ENGINEERS undoubtedly give much thought and time to obtaining a reasonable number of therms per ton of coal carbonised and to the cost per therm made, but doubt might sometimes be expressed as to whether or not the raw material—coal—is placed in their hands at the most economical price.

So far as coal is concerned, little can be done in the matter of cost. In these days the price is governed by the price structure of the National Coal Board, and it must be assumed that the engineer is receiving supplies reasonably suitable for the carbonising plant worked under his control. It is therefore in the ancillary charges, methods of delivery, and handling of coal to and from store that possible financial advantage can be gained.

The South Eastern Gas Board has a central organisation—a Coal and Shipping Department—for this purpose and, to give a general picture of the scope of its activities, mention should be made of its responsibilities, which are:

1. The purchase of coal for use at all the gas manufacturing stations of the Board.
2. The methods of delivery employed to give the most efficient and economical service in connection with coal required for carbonisation, the regulation of supplies and the maintenance of satisfactory stocks at all the works.
3. The complete management and operation of the Board's fleet of 15 seagoing colliers.
4. The certification of all accounts relating to coal and shipping and the computation of appropriate statistics in connection therewith.

These headings, embracing about 37% of the Board's annual expenditure, cover adequately the three major lines of thought to which reference has already been made—commercial, administrative and economic.

A General View

To obtain a general view of coverage of the Board, indication should be given concerning the area of supply, which is the southern part of the administrative County of London, the whole of the County of Kent and the greater part of the Counties of Surrey and Sussex. The area is bounded by the River Thames in the North and by the sea in the East and South, and the western boundary is represented approximately by a line drawn from Barnes to Littlehampton. The area covers nearly 3,300 square miles, in which are operated 59 coal gas making plants, supplying 1,455,000 consumers.

For purposes of administration, the area is divided into six divisions—Metropolitan, West Surrey, East Surrey, Kent Suburban, Kent County and Sussex County. Reference to the area being bounded by the River Thames and by the sea is of significant importance, as over 96% of the Board's total requirements of coal commences its initial stage of transport by sea.

The value of water as a means of transport is well known and is recognised in the Board's coat of arms, the wavy blue line representing the River Thames, forming the northernmost boundary, and the crest is derived from the Cinque Ports, suggesting the southernmost boundary.

The 59 coal gas manufacturing stations, varying in size and geographical location, present interesting methods of distribution, as the smallest works uses under 1,000 tons per annum and the largest, at peak load, 2,500 tons per day. Some works are in close proximity to a river, harbour or canal, with allied commercial activities, while others are some distance inland in country districts.

The preliminary arrangements in connection with the supply of coal are, it is thought, well known, but a short summary would not seem out of place.

Supplies are 'allocated' through the offices of the Ministry of Fuel and Power twice a year in accordance with the National Coal Board's budget of availability, each period being known as a 'programme,' the summer programme commencing at the end of April or early in May and the winter programme late in October or early in November.

At the commencement of each programme a 'target' is indicated showing the tonnage the Ministry consider should be held by each board at the end of the period. This figure is arrived at by taking into account the stock it is estimated will be held by the boards at the beginning, accepting an agreed figure for carbonisation (following estimates submitted by the boards) and adding thereto a tonnage to be placed into stock in the summer or making an allowance for withdrawal from stock in the winter. A 'target' figure is set nationally and then, from details collated by the coal officer to the Gas Council, sub-divided to an area basis, according to prevailing and geographical conditions.

In the South Eastern Gas Board, the summer 'target' is generally equivalent to six or six-and-a-half weeks' winter consumption and that for the winter on a decreasing basis so as to provide a stock of between three and four weeks' maximum consumption at the end of the winter.

Summer Stock Piling

Reference to these facts may help engineers to understand the reason for the pressure brought to bear on them to undertake stock piling in the summer. Withdrawing from stock large quantities of coal is to be regretted as it costs money, but there appears to be no alternative at the present time as, when submitting evidence to the Ridley Committee, the National Coal Board said that the first task of a national fuel policy should be to ensure that unavoidable shortages are spread evenly over the whole of each year and are not allowed to become concentrated in a few winter weeks so as to cause a fuel crisis.

Comments were also made concerning the gap between demand and supply, and figures given in respect of possible shortfalls in 1952. It was stated that, if these shortfalls were concentrated into, say, the five coldest weeks of the year—in February and March—it would mean some 30-40% cut in supplies when coal is needed most, and this would spell economic paralysis and cause incalculable economic loss to the nation.

It is the view of the National Coal Board that the accumulation of an adequate end-of-October stock is of the highest national importance and Figs. 1 and 2 indicate the operation

(*Continued on p. 157*)

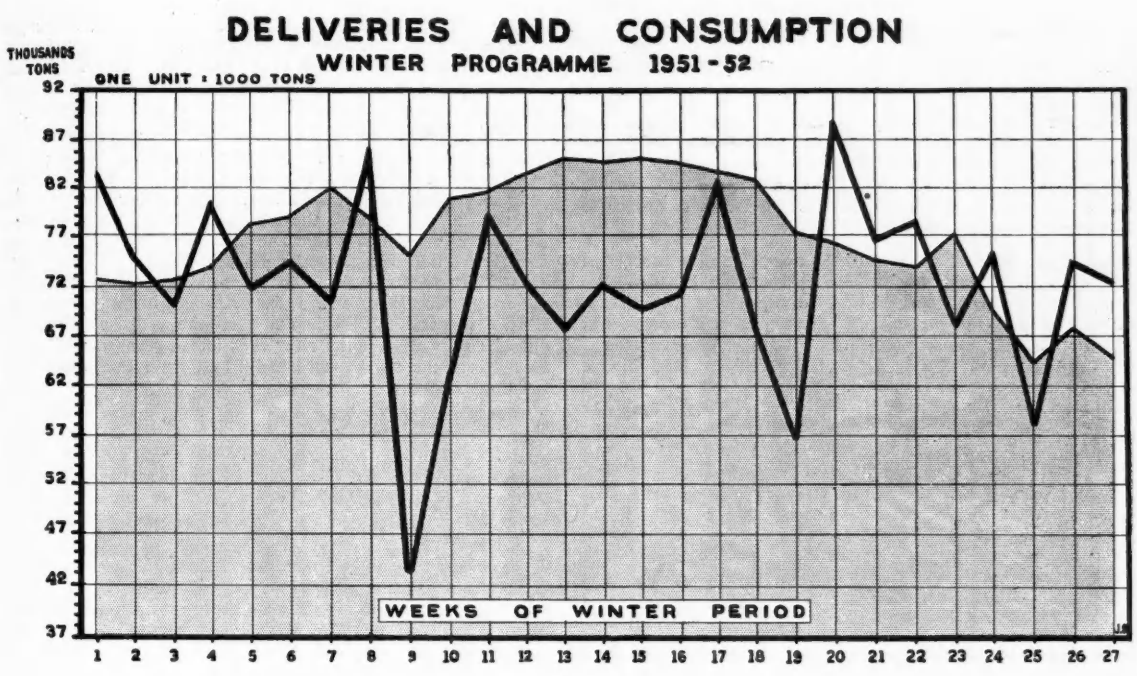


Fig. 1

of this policy as far as the South Eastern Gas Board is concerned, and Fig. 3 shows the effect deliveries have had upon the position during the past summer programme, when stocks rose from 286,244 tons to 534,617 tons, thus exceeding the target set of 526,700 tons, equal to 6.4 weeks' winter consumption. This graph also indicates the reducing effect which took place during the past winter programme, when the stock fell from 413,988 tons to 286,244 tons—*i.e.*, 3.5 winter weeks' consumption. This is illuminating when it is recalled that it was the accepted custom up to the commencement of the last war for coal contracts to be arranged on the basis of 60% supplies in the winter months and 40% in the summer.

In spite of the difficulties which are encountered from time to time during the accumulation of stocks, such as limited storage grounds or the arrival of tonnages considerably in excess of the normal handling capacity of a particular works, it is tantamount to negligence to refuse supplies, and it is therefore the responsibility of all coal officers to arrange dispersal to other manufacturing stations in which they are interested.

This would be comparatively easy to arrange if the policy were one of 'supplies must go forward at any price,' but this would be contrary to good practice. The planners must, and do, see that deviations, while perhaps of an unusual or emergency nature, preserve economic value to receivers.

Of the supplies for the South Eastern Gas Board, amounting to over 3¼ mill. tons annually, about 89% is drawn from the Durham and Northern divisions of the National Coal Board, the far greater tonnage being Durham; approximately 7% from the North Eastern division (Yorkshire coal), and 4% of Chislet coal from the South Eastern (Kent) division.

The major portion of this coal consists of many descriptions of run-of-mine—unscreened—although a number of works have need for graded sizes and, during the past year, no less than one hundred and thirty-six varieties and grades were recorded.

Leadage of coal from colliery to point of shipment is a factor which always requires careful thought; otherwise any material benefit attaching to a variety of coal is reduced if long hauls are undertaken when an equally suitable coal is available at a shorter distance from port of loading. Yorkshire supplies are particularly vulnerable in this connection as the leadage rates are generally considerable by virtue of long distances covered. It is felt that the mention of leadage is warranted, as it is understood there are many who believe that collieries are always immediately adjacent to the point of shipment. In most cases, however, sea transport can offer compensation when computing the total cost of delivery into works.

How is the coal transported and why is a particular method adopted for its disposal? It is on the grounds of economy and greater efficiency that a number of changes in the methods of delivery have taken place during recent years, effecting considerable savings to which reference will be made later.

With the recognition of sea transport as the cheapest form of transit over long distances, the unique position of the South Eastern Gas Board can be appreciated to the full by an analysis of the methods of delivery operating in relation to the total requirements of about three and three-quarter million tons per annum:

By sea direct	60%
By sea and rail	25%
By sea and barge ...	7%
By sea and road	4%
By rail direct	3%
By road direct	1%
	100%

These percentages relate to the major operation in the line of transport and do not take into account local arrangements which have to be made in some instances to effect final delivery.

The Board's Fleet

In connection with the tonnage delivered by sea direct, the fleet of 15 seagoing colliers forms a vital and valuable link in the system of distribution.

Loaded at North East coast ports, these ships, operated and managed by the Coal and Shipping Department, are engaged exclusively in serving the needs of the Metropolitan and West Surrey divisions, the two largest users in the area of the Board, which take between them over 2 mill. tons of coal

per annum. Riverside discharging berths of the Board are situate at East Greenwich, Rotherhithe and Wandsworth, and handle, in the order named, approximately 860,000 tons, 460,000 tons and 730,000 tons per annum.

For the purpose of description, the vessels can be referred to as 'down river' ships for clearance at East Greenwich and Rotherhithe, and 'up river' ships for Wandsworth, the latter carrying the well-known name of 'flat irons' on account of the flatness of the superstructure to enable them to navigate the 17 bridges spanning the River Thames to Wandsworth.

The down river ships are of the normal design associated with coasting colliers and the sizes range from 2,000 tons to 4,000 tons cargo capacity. They are capable of being dealt with expeditiously in loading and discharging, and the out-turn capacities of the unloading plants at the East Greenwich and Rotherhithe jetties of the Metropolitan division of 500 tons and 400 tons per hour respectively enable vessels to sail again on the tide following arrival.

Delivery by Barge

To the other two works of this division, final delivery takes place by barges, the Old Kent Road works being supplied principally by means of canal barges loaded at Rotherhithe, while the customary type of river barge maintains service to the Vauxhall works with coal taken, in the main, from ships discharged at East Greenwich.

The West Surrey division, with its headquarters at Wandsworth, shares the operational facilities of the Board's fleet, and has an interesting system of road transport to supply works—eight in number—other than the parent station.

The size of the up-river ship is from 1,880 tons to three carrying 2,800 tons each, and unloading takes place at the rate of 600 tons per hour. The latest ships are of the most modern design, having improved wheelhouse facilities, a single room for each officer and rating, the provision of modern aids to navigation, such as wireless telegraphy, radio telephony, echo sounders (to give depth of water under the ship), Radar, Decca navigator (which enables the navigating officers to plot the exact position of the ship at any time when at sea) and other useful equipment.

Even with the special design, the lowering funnel, telescopic masts, and reduced height of superstructure (with no funnel at all in the modern diesel ship), specialised knowledge and skill is required in the navigation of the winding River Thames where, in the upper reaches, movement is restricted by depth of water and a succession of low span bridges.

When a vessel with a draught of approaching 18 ft. passes under London Bridge on the passage up-river, the depth of water at Wandsworth would be insufficient for such a ship by 3 ft. but, by the time the destination is reached, the flood tide has provided the water and the necessary swinging and berthing of the ship can take place in safety. This in itself is an achievement worthy of note, as the length of the largest collier in this trade is 275 ft. overall, with a breadth of 39 ft. 6 in., and the turning area off the Wandsworth works with the ship athwart the river only leaves a margin of about 30 ft. from the north shore and 10 ft. from buoys used for mooring purposes on the south side.

After the cargo has been discharged, the passage down river must be commenced early in the tidal rise, because, in ballast condition, the vessel is higher in the water and the last of the bridges must be cleared before the tide is at its full height. Even so, it is common practice for an empty ship to be taken down river by the Pilot and a loaded one brought back on the same tide.

The policy adopted by the Board of building additional ships suitable for navigating the bridges to Wandsworth leads to economy, as it gives flexibility of movement and enables better use of vessels to be made when discharging can be effected at more than one place. Of the 15 ships, 10 can be discharged either above or below London Bridge, and only five are restricted to the lower reaches of the Thames by size or type of construction. Any deficiency in the carrying capacity of the fleet is catered for by chartering in ships as and when required.

Road Transport

The system of road transport within the organisation of the West Surrey division, which is carried out by contractors, is one of delicate planning yet adaptable to sudden change. Taking a colliery in Durham as an example, coal can be hewn

(*Continued on page 161*)

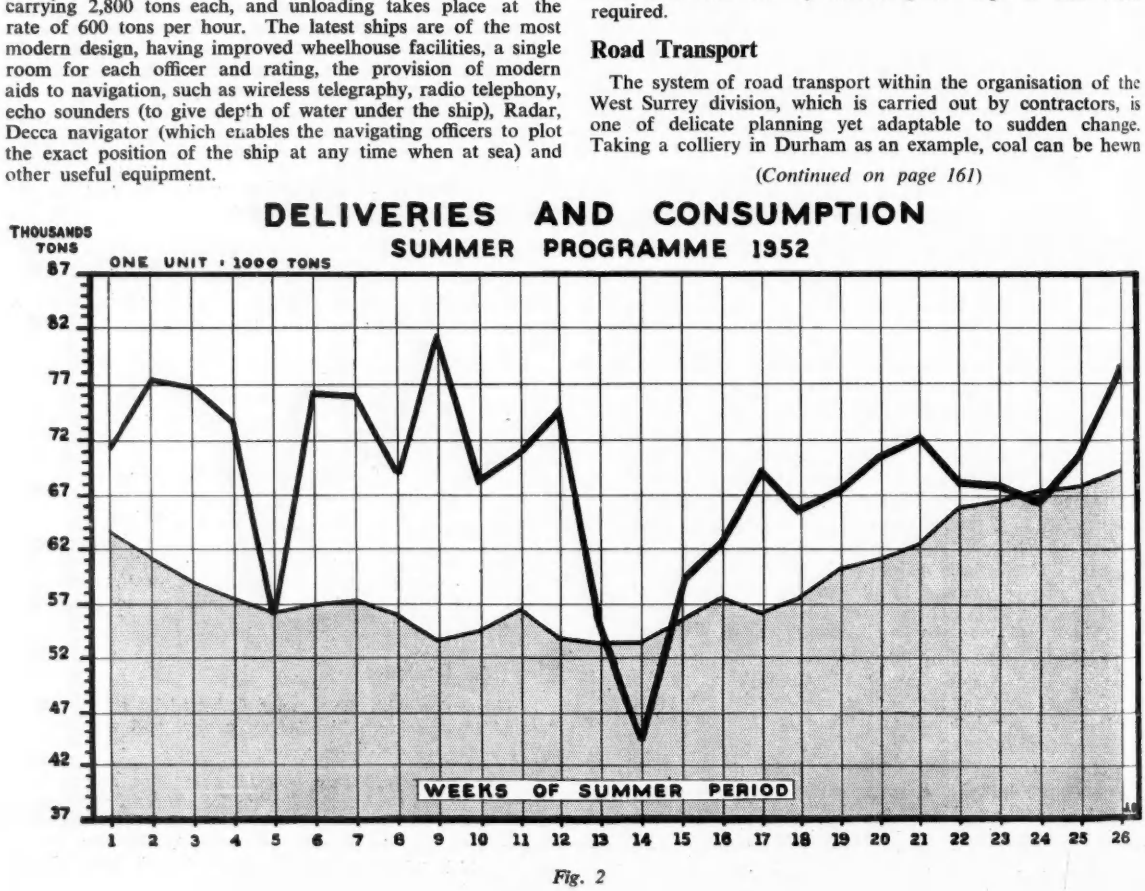


Fig. 2

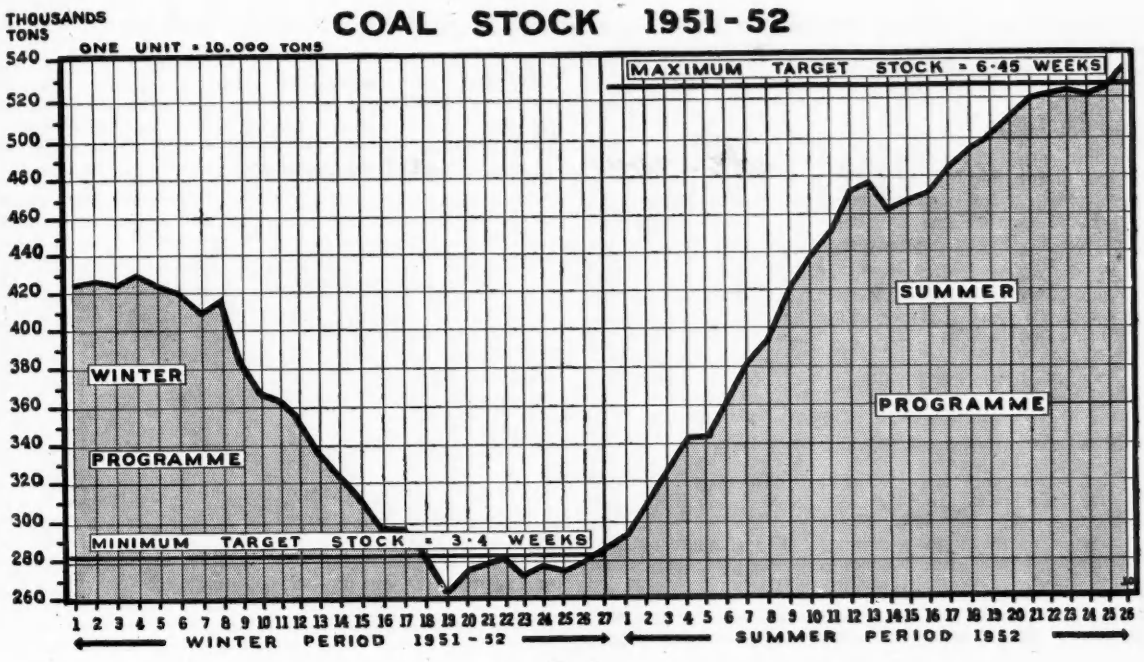


Fig. 3

from the coal face 1,500 ft. underground, raised to the surface, conveyed to a loading staith on the River Tyne and then shipped into a vessel destined for Wandsworth. After a sea passage of some 300 miles, the vessel is navigated up the River Thames, passing under the bridges already mentioned to the point of discharge.

Here the cargo is discharged at a jetty situate in midstream and the coal conveyed to a hopper on the shore, where it is loaded into road vehicles. A journey of a little over 20 miles is then made and the coal discharged into the boot of an elevator ready for use in the retort house—and all this in about 48 hours from the time the coal was hewn by the miner. It is not intended to give detailed costs but, in this example, a saving of 18s. per ton is effected when compared with the best alternative method.

A Cumbersome Method

Without being critical in any sense because the opportunities were not available in the past, it is perhaps interesting to relate that, some 14 or 15 years ago, it was the practice to supply the works mentioned in a manner which to-day would be considered cumbersome.

From steamers discharged in London, coal was loaded into barges of 100 tons capacity and, at an intermediate stage, was unloaded into smaller barges known as 'wide boats' for navigation of the Basingstoke Canal. At a point near the works, further unloading operations took place and, after traversing about a hundred yards of common land in skips pushed by hand, the coal eventually reached the retort house elevator. The period occupied from the time the ship arrived in London was about a week.

The initial stage of this delivery as it operates to-day is, of course, regarded as by sea direct, as the distributive arrangements referred to entailing the use of road transport are on an interworks basis, the largest works, at Wandsworth, having first call on deliveries owing to its somewhat limited storage capacity, the other works being supplied with current needs and quantities for stocking purposes according to availability of coal.

The stocking grounds of the works away from the parent station are invariably filled to capacity during the summer months, thus relieving the major station of pressure of giving full supplies in times of peak demand.

The daily deliveries vary from the requirements of the smallest works at 18 tons to 350 tons for the largest of the group. The shortest carry is two miles and the longest nearly 25 miles.

The amenities attaching to the area through which lorries pass receive careful consideration and it is for this reason the smaller type of waggon is sometimes used at a slightly increased cost when compared with the large vehicles. The routing of vehicles also needs careful attention so as to avoid congested localities.

Road transport plays an important, efficient and economical part in the distribution system prevailing, supplementary to the 1% of supplies drawn direct from colliery, but in case a wrong impression is created when illustrating methods of delivery employed, it must be stated that, in every instance, thorough investigation has taken place so as to obtain maximum efficiency at minimum cost, and the fact that a considerable tonnage is conveyed by road is due to the opportunities available for the use of the modern road vehicle. It would be wrong, in fact unfair, to set off one method against another without disclosure of the full circumstances, giving the merit or demerit of a particular form of transport. If a wheelbarrow pushed by a man gives the best service at the cheapest price, then a wheelbarrow it should be.

An Example of Flexibility

As an indication of the flexibility of road transport when operated efficiently, it might be mentioned that last winter one works was short of ready coal owing to normal supplies by barges being delayed by fog. A message requesting 300 tons of coal before the end of the day was received at 1.5 p.m. The first delivery took place within 45 minutes and the last of the 300 tons was in the works by 4.20 p.m.—and this at a works not laid out for reception of lorries in the accepted sense.

For carrying bulk supplies, road transport is not a recent innovation because, on a more modest scale when compared with the present arrangements, the system was in operation prior to the first World War in some parts of the area.

The modern type of diesel waggon has been developed as a result of the demand for this adaptable means of transport

and the number of journeys undertaken per vehicle and distances travelled daily show considerable advancement over the former days.

So far, about 54% of the total requirements of the Board have been mentioned. The balance is handled through the offices of a small number of specialised distributors working to the direction of the Coal and Shipping Department. Several works in the East Surrey and Kent Suburban divisions, in comparatively close proximity to the River Thames, are dependent upon seaborne coal delivered via Erith or Deptford, from whence it is transported by rail or barge.

On the Medway, Rochester is another focal point for distribution, and from here the services of barges, rail or road are again employed to complete the deliveries to many manufacturing stations in the Kent County division to the extent of 300,000 tons per annum, and special facilities, by the provision of hoppers, have been installed recently for the convenience of road vehicles at this port.

The County Divisions

The two County Divisions—Kent and Sussex—with their diverse requirements, provide scope for economy in handling costs, and road transport is playing an important part in the economies of the works concerned. The elimination of an intermediate stage of coal handling which prevailed hitherto has been effected by the use of this means.

The smaller type of coasting collier is used to advantage in the Kent County division where Yorkshire coal required at Margate is delivered at the Harbour in 650-tonners from Goole or Keadby at regular intervals on spring tides, the works providing the necessary local transport facilities.

In two other ports in the area—Dover and Shoreham—coal is delivered by sea and subsequently transported by road. To clear a ship completely by the use of lorries would lead to considerable delay in the turn-round of the vessels, and arrangements have therefore been made to create a buffer stock at the wharves where the ships discharge and then deliver in the quantities required by the works, thereby providing a service on a regular tonnage basis, a feature welcomed by the station engineers, who are mindful of the fact that feast or famine can easily be associated with the coal trade. At one of these wharves, two grades of coal are segregated in concrete bins.

At Portslade, ships deliver their cargoes direct to the gas works via the Shoreham Harbour and the Aldrington Basin, the vessels having a capacity of 1,200/1,500 tons. The annual tonnage passing through this installation amounts to over 200,000.

Generally, the port facilities available to the Board cope in an admirable manner with incoming traffic, but constructional restriction or the absence of suitable equipment for the reception of coal can create a situation leaving room for improvement.

Double Handling

At one port, coal is discharged from ships into railway waggons, which, after a journey of about a quarter of a mile, are reversed for a similar distance for unloading into road vehicles for final delivery at a point about three-quarters of a mile from the position in which the colliers berth. This is an isolated case, of course, but it indicates how easy it is for costs to mount when double handling of the raw material takes place. The works concerned is a small one and not sufficiently large for a railway siding, but the provision of a small hopper and the employment of a lorry would undoubtedly give financial advantage to the receiver. Unfortunately, this is not possible at the present time.

In the Kent distribution system a number of works are comparatively close to the Chislet colliery and it has been possible in some instances to provide a service from colliery to works in only two operations—one, loading by means of a mobile crane into road waggons and, two, discharge at the point required in the works.

Rail Traffic

It must not be overlooked that the service provided by the railways is also used to advantage, particularly at works planned for the reception of this type of traffic, such as Sydenham and Croydon, where a weekly tonnage of six to seven thousand tons can be handled at each works by means of modern tipplers, reducing handling costs to a low figure.

In a large number of cases reliance is placed in rail transit to meet circumstances prevailing and this applies not only to seaborne coal deliveries to London, but also to the Medway and the South Coast and to a quantity of coal drawn from the Yorkshire collieries by rail direct. This method also operates from the Chislet colliery.

When the proposed new large capacity waggon is brought into operation, the larger works dependent upon railborne supplies, and with sufficiently large siding accommodation, should expect still greater efficiency.

The circle of supply, transport and distribution can now be completed for it only remains for the engineer to confirm deliveries to the centralised Coal and Shipping Department so that payment can be arranged.

The Department's aim is one of 'service,' designed to give assistance to all those concerned with coal and, by reason of centralisation, it is able to view the supply position objectively on an area basis, thereby relieving other personnel of day-to-day problems which can arise on occasions when coal is available in abundant quantities or, conversely, when supplies are restricted. By single unit control no works should be in a position of being overstocked while another is almost without coal.

The chief office is accommodated at Wandsworth until such time as room is available at the Headquarters of the Board in Croydon. The staff, small in number, deal with advices from works of deliveries received, scrutinise and certify accounts for payment, and prepare financial statements. Within approximately 14 days from the conclusion of each quarter, each divisional accountant has in his possession a statement giving the agreed tonnage delivered in the division, together with the cost of the coal and transport and other information. The financial extent of these operations approximates £13¼ mill. per annum. The systems in force are simple in character, and the Department enjoys the co-operation of all with whom it comes into contact.

On Shipping Company Lines

The shipping organisation of the Department is conducted on the lines of a shipping company, ships' wages accounts, customary disbursements, income tax returns, insurances, casualty claims, etc., receiving attention. The Board also has a small office in Newcastle, from which the Marine Superintendent undertakes the complete supervision of all maintenance work on the ships and such surveys as are necessary from time to time, as well as superintending the building of new ships. Stemming of ships for loading and chartering of outside tonnage when required is also carried out at Newcastle.

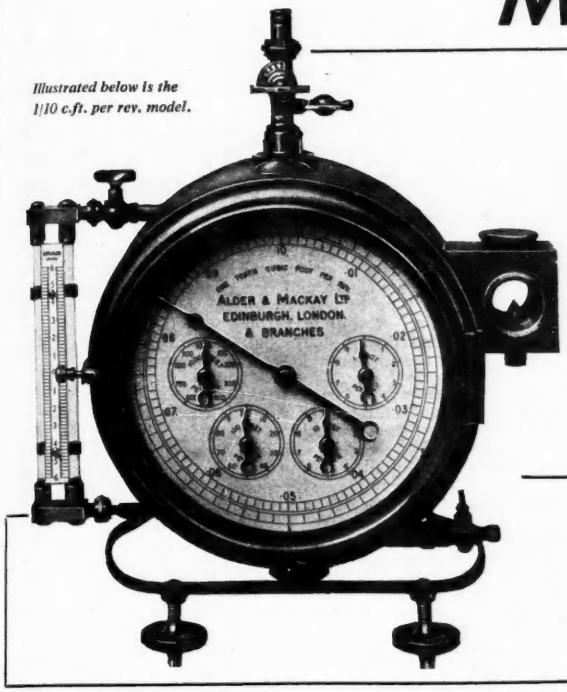
Does all this lead to a sound economic structure? The answer is definitely in the affirmative. Savings over previous methods of delivery are substantial, and the total economies, including sundry other items relating to coal and shipping, amounted to £155,700 from vesting date to March 31 last. A number of these savings were only made possible by the existence of the South Eastern Gas Board as a parent body covering whole groups of works.

Known economies do not include savings brought about on various works where, by reason of changes made since nationalisation, plant or labour hitherto employed is no longer necessary. Possible renewals, necessitating the expenditure of capital, have also been avoided.

The tide ebbs and flows for the ships, the tugs and the barges: the railway waggons travel the permanent way: the road vehicles perform their function on the highways and,

(Continued on p. 164)

IMPORTANT MEASURES



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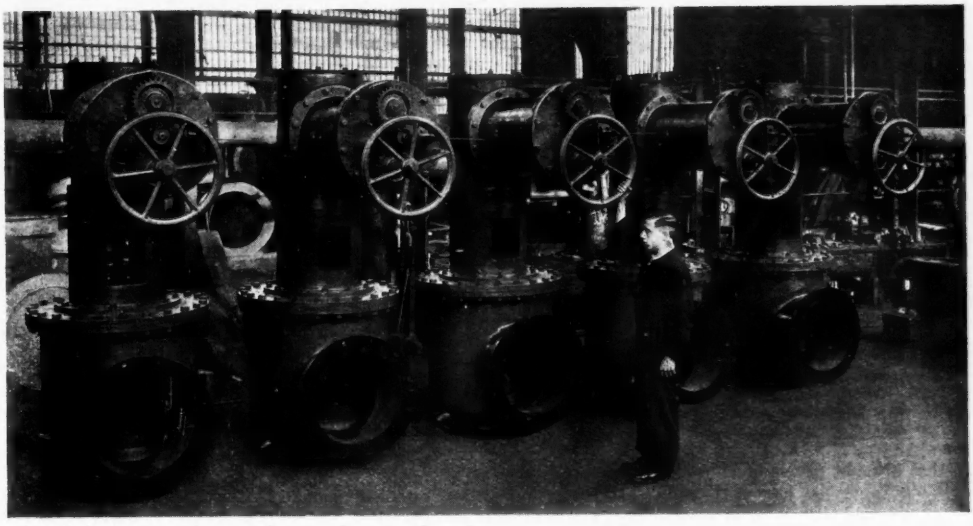

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2

together, create a commercial, administrative, and economic structure in connection with the supply, transport and distribution of coal. With the selective employment of these facilities, there can only be one end in view—to discharge satisfactorily the duty to provide the best possible service to those whose confidence must be maintained—the consumers of gas.

DISCUSSION

Mr. L. O. V. Hayward (North Thames Gas Board) said that apart from the personal aspect, as Coal Officer of the South Eastern Gas Corporation prior to nationalisation, he would always have some interest in those particular works which ultimately became members of the South Eastern Board. He made this opening remark in spite of Mr. Gostelow's statement that £155,700 had been saved between vesting day and March 31 this year by improving upon various methods of delivery, and he wondered whether the works providing this saving were ex-South Eastern Gas Corporation. He could not but agree with the author's statements with regard to allocations and stock building. There was no doubt that the industry was called upon to put larger quantities of coal into stock in the summer and reclaim larger quantities during the winter, than prior to 1939. This summer stock building was of paramount importance, but he could sympathise with the particular engineer (a great help to the coal officers, incidentally) whose works had a storage capacity larger than the target, and who was called upon to fill it, in order to hold stock for another works unable to store the required tonnage, thus permitting the total target stock for the Board to be achieved. Not only did he have the trouble of putting the extra tonnage to stock, but during the winter coal officers were forced to schedule his works considerably short of requirements, while they must inevitably supply the works with a small storage capacity with practically full requirements of freshly wrought coal in order to keep stocks reasonably well balanced. Meanwhile the engineer who assisted so well in the summer carbonised stock coal. This of course was inevitable while there were works with small storage capacities and was no doubt taken into account when working results were compared. Even this adjustment on winter supplies had its limits.

When one considered the question of distribution, here was a problem peculiar to each particular Board according to the facilities available—*i.e.*, sea and/or rail and/or road and/or barge transport. It was to be noticed that Mr. Gostelow transported a large daily tonnage of Yorkshire coal by sea and he could therefore understand his concern with regard to the leadage on Yorkshire coals accepted seaborne. These could be very heavy. Railway rates from the Midlands were very high south of the Thames, and it was appreciated that it might be more economical to bring Yorkshire coal by sea and complete the journey by road. Much would, of course, depend on the size of the ship and the corresponding rate of freight. This road transport was a method of delivery which could be most economical but was only capable of extensive use if tonnages were not unduly large and the area not too congested. The railway rates from Yorkshire for works north of the river were such that considering all factors, direct railborne was the most acceptable. Incidentally, it was interesting to note that the North Eastern Division of the National Coal Board was, he believed, the only division charging actual leadage for each description of coal. Durham and Northumberland co-ordinated on an f.o.b. price.

He was glad to see the tribute paid to the pilots of the up-river vessels. Like the South Eastern Gas Board they relied a great deal on the skill by which these vessels were navigated through the bridges to supply the Fulham and Nine Elms works, totalling 900,000 tons per annum. It was remarkable how small the arch of a bridge appeared when one approached it in a 2,600-ton ship at night, and bore in mind the limited time these vessels had to operate either side of high tide. A matter of minutes decided whether there would be too much or too little water to navigate the bridges, and they must not forget that tides did not always run strictly according to the tables.

He was quite sure that it was the right policy to construct sufficient ships capable of navigating the bridges to show a surplus above requirements of up-river works, thus allowing for weather delay and casualties, but if the down-river berths were capable of handling ships of a larger capacity, a very careful balance would have to be kept owing to the large difference in the rates of freight between, say, a 4,000-tonner and a 2,600-tonner. He was sure that the South Eastern Gas Board had given this very careful consideration in determining their policy.

Mr. H. M. Lawrence (Southern Gas Board) said that his remarks would be supplementary to Mr. Gostelow's paper and concerned with savings which could be effected in the chain of transport from pithead to retort house. In particular he was interested in stocking and stocking grounds, proper use of which could save untold thousands of pounds. The stocking ground was usually some desolate part of the works rarely visited by senior officials. In his view there was 'gold in them thar hills.' The ground was usually in charge of a yard foreman who was surprised to learn how much could be saved in good stocking. A few hundreds spent on preparing the ground in summer could save ½-1 in. of coal over several acres in bad weather.

Another thing which could save money was a little salutary discipline on lorry drivers. They had a tendency to dump their loads anywhere and one would find on the works 300 tons of one type of coal here, 100 tons of another type there, and so on. A shilling a ton could be saved by good housekeeping and laying stocks out in measurable quantities, just for giving the matter a little forethought.

Mr. E. O. Rose (Eastern Gas Board) said the paper provided food for thought and led to the admission that the South Eastern Board was extremely fortunately placed. On the north side of the river it was not many miles before the railborne price equalled the seaborne price. They could not develop such a system with similar advantage, but it was worth considering whether railborne coal could be treated in a rather similar manner. At present it trickled in small quantities from various pits. There was much advantage in nominating deliveries which could be assembled and made up into full trains. If only they could get from the railways the same kind of co-operation which the South Eastern Board got from the sea-going people, a great deal of improvement could be effected. He would like to endorse the sound advice on stocking given by Mr. Lawrence. Today summer stocking was wished on them. Before the war they took 40% of their coal in summer and 60% in the winter, and supplies only stopped during a coal strike. After the strike in 1926 supplies were not interrupted until the war. In those days they never considered the cost of putting it down, and if they lost a lot, that was just too bad. However, summer stocking was here to stay and the whole stocking position had to be reconsidered and the many mechanical problems involved had to be examined.

Advantage of Own Ships

The local conditions applying in the South Eastern Board could apply to other areas, and it seemed that extended use of road delivery would solve a lot of problems. Many years ago the horse and cart was used and they had thought they had said goodbye to road transport. Today, however, road transport effected many savings: Tipplers, a separate weighbridge, and often a weighbridge man. If one added up all these things, together with the cost of stocking, considerable simplification could take place. He would be interested to learn the saving per ton resulting from one's own ships. He suspected that in the case of chartered vessels, some shipowner was putting the difference in his pocket.

Mr. E. G. Stewart (North Thames Gas Board) wondered whether Mr. Gostelow had yet experienced a railway putting a restriction on the siding clause to the effect that no other method of transport be employed than by rail.

Mr. W. H. White (North Thames Gas Board) said it had been his privilege to visit Mr. Gostelow's den where he was surrounded by superb models of ships which illustrated the growth of the fleet during the years. Because he had expected to hear a history of these ships, he had found the paper a disappointment. The story of the growth of the South Eastern fleet would have provided a fascinating record. He would be interested to know the ruling regarding whether a ship would ground with a full cargo or part cargo, and the datum for soundings.

Mr. K. L. Clark (W. J. Jenkins & Co., Ltd.) noted the statement that within 14 days from the conclusion of each quarter, each divisional accountant had in his possession a statement giving the agreed tonnage delivered in the division. How was that agreed tonnage determined? He knew of one works which normally received coal by sea but whose transport

system broke down for six weeks during which they had to resort to road transport. The road lorries were weighed for the six weeks and when the carbonisation figures for this period were received, it was found that output had considerably increased. On the subject of coal stocking, Berlin's largest gasworks, of which he had had some experience and which was virtually the German equivalent of Beckton, had made provision for 80,000 tons of storage overhead.

Mr. J. T. Veryard (South Eastern Gas Board) quoted the author's statement that 'it must be assumed that the engineer is receiving supplies reasonably suitable for the carbonising plant worked under his control.' In these days it was not possible to question what the National Coal Board sent them but he wondered whether Mr. Gostelow had considered quality with regard to cost of transport. The transportation of dirt and ash cost money, and the shorter the distance one sent it, the better. On this basis East Greenwich should receive the dirtiest coal and Portslade the cleanest.

Mr. J. D. C. Woodall (South Eastern Gas Board) pointed out that the Board purchased coal at a fixed price and he wondered whether the amount of ash in the coal was taken into account. They received analyses and they sometimes believed them—which showed a big variation in the amount of ash in a given quantity of coal. Why pay a fixed price for coal which might contain 8-12% inerts. Did the Board test coals in a pilot gas-making plant as at Beckton in the old days? On the question of stocking, they had for the first time achieved their target stock of coal. Lest those responsible thought this very clever, he would point out that it had only been achieved because they had very low coke stocks. The time might come when they had large coke stocks and there simply would not be the room for coal stocks. They had had much experience of Durham mixed with Chislet—a pernicious mixture much given to spontaneous combustion—and had reckoned in the old days that when it had been down eight months there was no longer much risk. Today it was never down long enough to find out.

The Author's Reply

Replying to some of the points raised, **Mr. Gostelow** referred to the happy way in which he had worked with Mr. Heyward for many years, and commented that there was never any invidious competition between one board and another. He was in full agreement with Mr. Lawrence's views on stocking, and although the Chief Engineer of the South Eastern Gas Board was present, he could say with truth that their own consciences were clear. This was indeed a matter of paramount importance. He agreed, too, with Mr. Lawrence's reference to what was known as 'bunching,' the dumping of coal which had to be pushed around afterwards. He thought Mr. Rose's comment on the need for greater co-operation from the railways was very true; unless that co-operation was forthcoming, it was the railways which would lose ultimately.

Regarding the question of the difference in cost between board-owned and chartered ships, one board did not agree figures with another. These domestic arrangements were not disclosed by a gentleman's agreement. In reply to Mr. Stewart, he knew of no restriction in the agreement with the railways except, in one case, an old agreement which stipulated that a certain tonnage must be taken over that line in a certain period. He sympathised with Mr. White's feeling that he could have devoted some time to the history of the ships, but he felt that this was too large a subject to be contained in this particular paper. He had spent 39 years seeing the fleet grow up and it had naturally become a matter of absorbing interest to him. In answer to Mr. White's query, ships could ground in any state of tide, either light or loaded. There was no fear of letting them ground provided that the masters and officers were cognisant of the situation. It was all a question of ballasting and leaving the ship on an even keel. Tolerances were 2 in. either way for soundings.

Mr. Clarke had raised the matter of agreed tonnage. They agreed the tonnage with the receiver, but it was quite true that greater accuracy was possible with road transport in which net weights were recorded, whereas with seaborne coal they worked to a full bill of lading. The price of coal, mentioned by Mr. Woodall, was of course bound up with National Coal Board price structure.

Proposing a vote of thanks to the author, **Mr. C. J. B. Sawbridge** (South Eastern Gas Board) said that although he was an accountant, he did derive much knowledge and interest from the paper. Mr. Gostelow had brought them a breath of fresh air and the tang of the river, and although in the present inclement weather the vision of a collier rolling in a rough sea was a little disturbing, he had had the good fortune to travel in a collier in somewhat finer weather and had found it a stimulating experience. Mr. Gostelow had an interesting job; he dealt with big tonnages and big money and he painted on a large canvas. His staff were backroom boys, and he would like to say a word on behalf of those in the South Eastern Board to whom Mr. Gostelow had given his help so freely and generously at all times.

Seconding, **Mr. E. G. Stewart** said he did not know why Mr. Gostelow thought a technical audience would have little to do with the commercial, the administrative and the economic. Of course they had a great deal to do with these factors. Every engineer was very grateful to the coal officers for the anxiety they saved them. It had always seemed that the Wandsworth ships were one stage ahead of their own, but Wandsworth and Fulham had worked closely together and had had happy times sharing their problems. And in thanking Mr. Gostelow for his paper he would assure him that in these days of nationalised bodies it was pleasant to get a real live individual as an Aunt Sally at whom one could throw a brick with the knowledge that it was going to hit the right person.

FACTORIES, TRUCK, AND SHOPS ACTS

THE 18TH EDITION of *Redgrave's Factories, Truck, and Shops Acts*, by John Thompson and Harold R. Rogers, has been published by Butterworth & Co. (Publishers), Ltd., price 50s. As the authors point out in a preface, the constant problem with such a book is to keep up to date and preserve the accuracy of its contents in the face of legislative activity and judicial decision. They claim, however, that its pages contain a statement of the law which includes all the relevant enactments and reports of cases appearing up to the end of July, 1952. In some cases even more recent additions have been made.

For the 18th edition an entirely new index has been provided by Mr. David A. Lloyd, Barrister-at-Law. The index not only greatly increases the number of entries but also provides, by making the entries more specific, an easier means of discovering the topic required.

The largest fresh statutory provision since the previous edition of the book is the Shops Act, 1950, which has been fully annotated.

THE BRITISH WOOD PRESERVING ASSOCIATION has appointed Mr. F. H. Hall (Solignum, Ltd.), and Mr. C. W. Nichol (Celcure, Ltd.), as its representatives to serve on the recently constituted B.S.I. Technical Committee P.176, Preservation of Wood for Packaging. The annual general meeting of the Association will be held on March 11, 1953, at the Holborn Restaurant. The Association is to collaborate with the Timber Development Association in the preparation of a new edition of the T.D.A. Red Booklet on Preservation.

IN THE CURRENT ISSUE of *Tin and Its Uses*, typical analyses of commercial brands of tin are tabulated and the method whereby tin salts can be baked into the surface of glass thereby rendering it into a conductor of electricity briefly described. Other features cover the organo compounds of tin, a note on the recent bi-centenary of the birth of Nicolas Appert, the founder of the canning industry, and other articles of interest. The publication is obtainable, free, on request to the Tin Research Institute, Fraser Road, Perivale, Greenford, Middlesex.

HASTINGS COUNCIL proposes to start a campaign to give local authorities the responsibility for the distribution of gas and electricity. As a first step it is proposed to seek the approval of the Association of Municipal Corporations. The proposal is based on the argument that local authorities operated gas and electricity undertakings efficiently before nationalisation and that the time is now ripe for the Government to delegate to selected authorities the duty of acting as accredited representatives in the control of distribution. The effect, it is claimed, would be for the undertakings to be operated to better advantage than by boards which have no direct responsibility to the people.